

## MILITARY MEDICINE

## ORIGINAL ARTICLES

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## Tropical Jellyfish and Other Marine Stings

By

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(With six illustrations)

**M**ARINE stings in western New Guinea waters have been mentioned in this journal by Tyson (1957). That article prompts me to place on record certain aspects of marine stings which have been observed.

It should be realised that in many cases these stings occur in places that are remote from centres of medical practice and research, and the experiences in such places among service personnel are not likely to be duplicated for many years. One may conclude from Dr. Tyson's account of a scrotal sting that bathing at the time was customarily nude. The same applied in the writer's experience with personnel of the Australian military and naval forces; and this feature is unlikely to be duplicated in large mixed groups of civilians of European extraction.

My experience with marine stings in the tropics began on 11 December 1943, at the Trinity Beach area, near Cairns, north Queensland. The area concerned was used as a training area for both the Australian and United States armed forces. My own experience was among the military and naval personnel of the beach landing force ("Beach Group") that was training there at

the time; I was the Regimental Medical Officer attached to an Australian battalion. Some local civilians were also treated.

It soon became apparent that there were two clinical types of stinging present among the bathers—the Type A stinging or stinging without wheals but with severe constitutional symptoms, and another, designated as Type B stinging or stinging with wheals but with little or no constitutional reaction. Subsequently the stings designated as Type A were given the name of the "Irukandji" sting. The agent causing this sting remains unknown, but it is hoped that its identity will be revealed from efforts being made at present by students in north Queensland. The two clinical groups of stings will be discussed further under the following headings: (1) Type A or Irukandji (without wheals), and (2) Type B (with wheals).

TYPE A OR IRUKANDJI STINGING (WITHOUT WHEELS)  
(Fig. 1A, B)

Case 1: On 11th December 1943, a sailor aged 19 years, of the Naval Beach Party, was seen in his tent in the unit lines. He had been swimming during the morning, and after coming out of the water he complained of aching all over. This was followed by severe colicky pains referred to the epigastrium. He was able to walk about, vomited several times. He was evacuated to the small local military hospital as a possible case of acute appendicitis. On ad-

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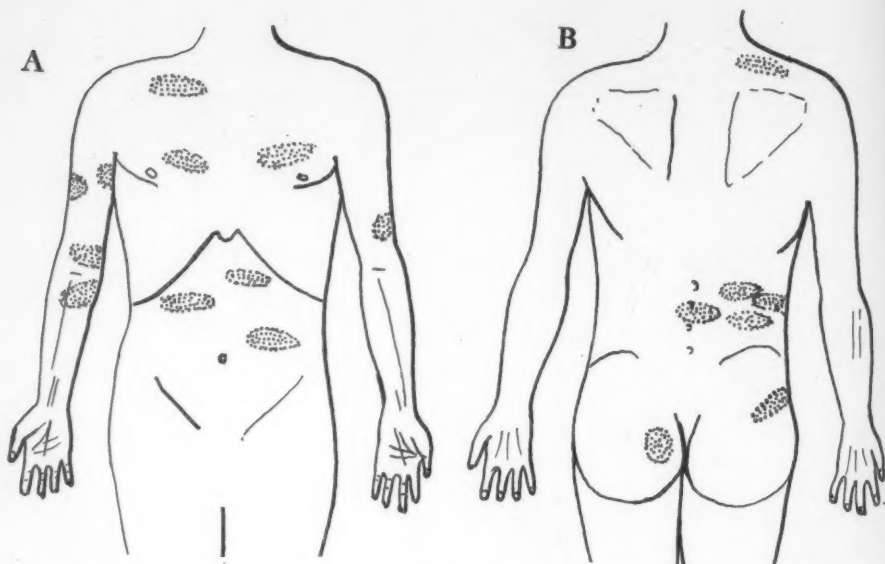


FIG. 1. Distribution of areas of erythema at site of stinging in a number of cases of "Irukandji" sting, at Trinity Bay, north Queensland, in December 1943-January 1944. The agent causing this distinctive type of stinging has not been identified (see text).

mission he repeated the above story, and stated that he had been to a "beer party" the night before. On examination the tongue was furred. The bowels had not been opened that day. A generalized abdominal rigidity was present, making the abdomen difficult to examine. Clinically the lungs were normal, but the heart sounds were recorded as irregularly irregular. The deep reflexes were hyperactive. There was some pyrexia. By two days later he had recovered, and was returned to his unit, the diagnosis recorded being "pyrexia of unknown origin."

It became apparent subsequently that the case recorded was one of a peculiar marine stinging, now named the "Irukandji sting." That name was given by Flecker (1952) purely as a non-committal one, and was the name of the native tribe that formerly lived over some of the hinterland of the coasts along which this stinging occurs in north Queensland. The causative agent remains unknown, as remarked above. Probably it is not a medusa. Clinically this type of stinging is unlike those usually caused by medusae, and it can sting through woolen bath-

ers (Flecker *loc. cit.*). According to a local observer (Mr. J. Verevis, personal communication to the writer, 13th November 1958), in the centre of the area of the initial stinging there is a minute puncture with a pin-like black structure. Up to the present however this pin-like black structure has not been submitted to any detailed study.

Further experience at the time showed that these cases of "Irukandji" or Type A stinging formed a reasonably homogeneous group. On the 26th December 1943 I was still attached for duty with the same unit, at the same location: Palm Beach, Trinity Bay, north Queensland. I recorded on that day:

"For the last few weeks bites of unknown origin have been frequent in swimmers. My own observations influence me to the decision that the stings are commonest on windy days (according to reports received it is generally recognized in Cairns that the NE winds blow the animals landward). This view I held until today, which was dead calm, and stings were common. From today details of all cases are to be recorded. The general run of a case has been a sting in the water

followed later (5-60 minutes) by acute pains in the area affected, and spreading away from it, into the arms and legs (and tending to localize in the joints—right in the joints, especially the knees). Vomiting is excessive. Morphia grain  $\frac{1}{4}$  (by injection) relieves the pain. It should be noted that although the pain is extreme it is not accurately localized. Symptoms can be largely prevented by the rubbing of a handful of sand over the area (affected initially) (I now doubt this—R. V. S.). Vomiting follows and there is a generalized abdominal tenderness. The patient has a raised pulse rate (120-130 per minute), but generally a subnormal temperature of about 97°F.; occasionally a temperature of 100°F. is seen. The rash is minimal; generally there is only a redness and a number of minute vesicles, and although the patient is sweating excessively, the area of the sting does not sweat.

"Yesterday some local civilians claimed to me that the cause of the stings was a 'small black fish' (local name not recorded). They claimed that the 'fish' come out on calm days, and can be seen in numbers at the bottom of the reefs—referring to the nearby Double Island Reef.

"Today small jellyfish are very common in the water, but are bluish-brown (these were subsequently identified as *Pseudorhiza* sp.—Southcott 1952). Hundreds of people are in the water today."

On the same afternoon (26 December 1943) two similar cases of stinging were seen among the bathers. Both patients were civilians. Details of their cases (Cases 2 and 3) are:

Case 2. A boy aged 14 complained of pain in the limbs. Vomiting was severe and he was sweating excessively. The pulse rate was 130-140 per minute. He was given gr.  $\frac{1}{4}$  morphia. He felt better some hours later, and was taken home.

Case 3. A girl aged 8 who complained of a sting in the arm and buttock. She vomited, and the pulse rate was 130-140. There was no sweating. No treatment was considered necessary, except rest.

Further cases continued to occur into Janu-

ary 1944, but will not be detailed here. In general they were similar to those already described. The areas of the sting showed only the mild erythema recorded. The areas stung in a number of cases have been indicated on Fig. 1 A, B. The distribution of these suggests that the stings are inflicted in the more superficial layers of the water.

#### TYPE B—STINGS WITH WHEELS (FIG. 2 A, B)

Among the bathers in the sea at Trinity Bay, Queensland, in December 1943 and January 1944, there was a smaller number with quite a different clinical picture. These were designated Type B stings or stings with wheals. In these the wheals were practically the only clinical feature. The first case seen was in a heavily built sailor aged 19 years (Case 4). The patient was seen on the morning of 30 December. He had been stung about half an hour before. The sting was over the upper part of the abdomen and the lower chest, on the right side (Fig. 2 A). The patient had rubbed this area with sand soon after the stinging. There were no general symptoms, and the only complaint was of some local irritation at the site.

Examination revealed a series of banded wheals—about half a dozen—appearing urticarial in nature and running horizontally over the stung area. Careful inspection showed that over the whole area of the sting there was no sweating. It was surmised that the urticarial type of response had closed the orifices of the sweat glands. Five minutes later fine beads of sweat were seen across the area, in the same manner as upon the rest of the skin of the trunk. Across the area of the sting there was a fine almost colourless thread-like strand, about 6 inches long, and obviously a part of the tentacle of the jellyfish responsible for the sting.

These Type B stings were clearly different from the Type A or Irukandji stings. The strand of tentacle gave a clue to the type of medusa responsible. Unfortunately at the time I did not think to preserve the strand. It is now apparent to me that the characters of the strand, particularly the

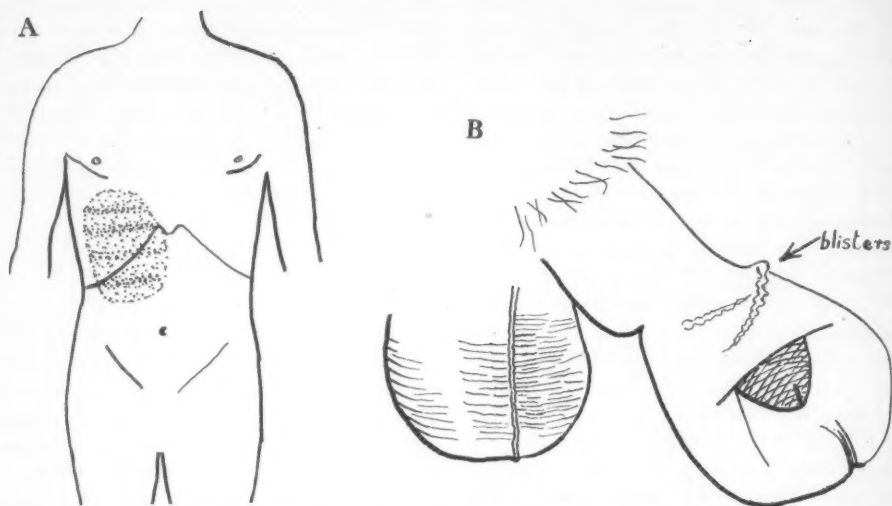


FIG. 2. Reaction to "Type B" stinging, in which there is wheal and vesiculation. This is the general type of medusae stinging, and in these cases of stinging at Trinity Bay, north Queensland, were probably due to Cubomedusae. A—bands of wheals with erythema, seen in Case 4. B—vesiculated wheals on penis and edema of prepuce, in Case 5.

types of nematocysts or stinging organoids, will offer some information on the medusa responsible. Thus certain types of the nematocysts are found only in the Siphonophores (that is the colonial Hydrozoa with different sorts of polyps, including *Physalia*, etc.).

At first the writer supposed that the Type B stings were due to *Physalia*, the Portuguese man-of-war, since all marine stings in the area due to jellyfish were popularly attributed to *Physalia*. At the present time, however, the writer believes that the Type B stings seen were due to a Cubomedusa, and probably due to the local common Cubomedusa, now described as *Chironex fleckeri* Southcott 1956 (Fig. 3). *Physalia* is a conspicuous creature as it floats upon the surface of the water; and its prominent air-filled float makes it easy to recognize (Fig. 4). On the other hand the Cubomedusae are practically transparent, and rarely break the surface of the water. They are not often seen by casual observers, and the failure for any of the victims of the Type B stings to see the responsible jellyfish fits easily with

the hypothesis that a Cubomedusa was responsible.

Some days after the first case of Type B stinging seen, on 4 January, 1944, a medium sized Cubomedusa was captured (specimen number A7). Experimental stings with this upon the writer's arm reproduced the local Type B stings. A note on this was recorded earlier (Southcott 1956).

Further Type B stings continued to occur in the Trinity Bay area. Thus on 4 January 1944 a 26-year old soldier experienced a sting upon the genitalia (Case 5). That sting occurred at 7 a.m. There were no general symptoms, but about 5 hours after the sting a vesicular lesion appeared upon the penis, and the foreskin became oedematous, translucent, though retractile. This is shown in Fig. 2B, drawn 26 hours after the sting occurred.

It may be commented that the barring of the wheals upon the skin in Case 4 (Fig. 2A) suggests that the sting was inflicted by a medusa possessing a leash of parallel tentacles. The large many-tentacled Cubomedusae will meet this requirement, although at pres-

ent it cannot be claimed that this feature is in any way specific for the Cubomedusae.

#### SUBSEQUENT OBSERVATIONS

Cases of each clinical type of stinging continued to occur into January 1944. In conjunction with another Army Medical Officer, Captain Norman S. Powys, who was also attached to the same beach landing forces, a survey was made of the clinical aspects of the stingings, as well as some

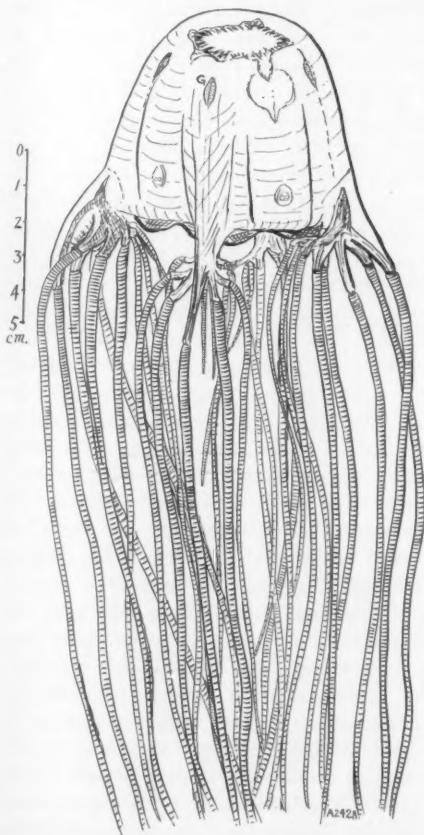


FIG. 3. *Chironex fleckeri* Southcott 1956, the probable cause of fatalities in northern Australian seas. The medusa shown is about half-grown. It is superficially similar to *Chiropsalmus quadrigatus* Haeckel 1879, the jellyfish to which fatalities are attributed in Malaysia and the Philippines, but may be distinguished by the small lateral (interradial) gonad ("G" in figure).

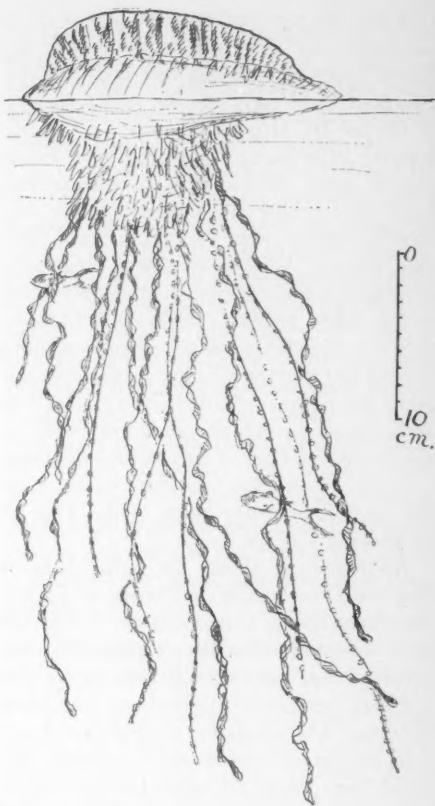


FIG. 4. *Physalia* or Portuguese man-of-war. This may cause severe stinging with wheals and vesiculation. The small fish, *Nemus*, travels with *Physalia*; two of these are shown among the tentacles. *Physalia* is found in all the warmer oceans.

other features. A report was written, but was never published. The writer left the area on 9 January 1944, and was not again in a position to make personal observations on the stingings in this area. Dr. Powys, however, remained, and a year later informed the writer that the new season had brought forth stingings similar to those of twelve months before. A brief résumé of this subject was published by the writer some years later (1952).

#### DISCUSSION

In the past there has been a good deal of confusion on these stingings. There is no

evidence that any local medical man or civilian made any clear differentiation of the clinical types of stings recorded until the efforts of Dr. Powys and the writer, as well as the late Dr. Hugo Flecker, of Cairns, before the latter part of World War II. From time to time statements were encountered from local people and others, e.g. the one recorded above about the "small black fish" (see above). Another statement frequently encountered was that the stings were due to "detached pieces of tentacles." Presumably this hypothesis was advanced to account for the fact that the stinging agents were not seen. No person admitted having seen any such, unless we note the strand observed by the writer in Case 4 and recorded above.

Some comment has been made earlier upon the possible causative agent of the Type A or Irukandji stings.

As mentioned above, the writer believes that the Type B stings occurring at Trinity Bay were due to Cubomedusae. It was not until some time after the experimental sting recorded that the writer became aware that the many-tentacled Cubomedusae may cause fatalities. There is at the present time a certain amount of circumstantial evidence that these "box-jellies" are lethal, but there is one piece of indisputable evidence. That was the capture of one of these adhering to a boy aged 12 years, who died within a few minutes of being stung at Darwin, Australia, on 12 March 1938. Some further comment on the subject will be found in another paper (Southcott 1958), and a further report on that Cubomedusa will be made elsewhere. It is at present under study in the writer's laboratory. In northern Australian waters *Chironex fleckeri* Southcott 1956 is the probable cause of the fatalities, while in Malaysian and Philippine waters the fatalities are attributed to *Chiropsalmus quadrigatus* Haeckel 1879, which is superficially similar to *Chironex fleckeri*. The principal differences between them lie in the structure of the lateral gonad and the length of the manubrium (oesophagus). In *Chironex* the latter is much longer, and hangs down the inside of the bell like the stalk of a mushroom.

Medical and lay writers have, until recent years, stated that fatalities from jellyfish stings are due to the Portuguese man-of-war (*Physalia*) (Fig. 4). Although this statement is still frequently made, no evidence can be found of any documented case of fatal stinging from this jellyfish (see Southcott 1958). It may be pointed out that up to the present all fatalities from jellyfish stinging that have been recorded or brought to the notice of the writer have been confined to the tropical Indo-west Pacific area—Philippines, Malaya, Borneo, New Guinea, Northern Territory and Queensland in Australia. *Physalia* occurs in this area, but is by no means confined to it. It is found in all the warmer oceans. On the other hand the large many-tentacled Cubomedusae are confined to this region (with the single exception of a west African form, *Chiroadropus*).

At the time of the stings the writer made an unskilled effort to find stinging and other macroscopic medusae, from the shore and a jetty upon the beach studied (Palm Beach). No specimens of *Physalia* were found at the time the stings were occurring, and it would appear that in general they are not found there in large numbers. Possibly the Great Barrier Reef prevents their being blown ashore in any numbers from the open ocean. The capture of one specimen of a many-tentacled Cubomedusa has been recorded above, and in recent years various collectors have sent the writers a number of further specimens. These have answered to *Chironex fleckeri*, where they have been mature enough and well enough preserved for identification. It appears from the observations of various collectors and correspondents that this Cubomedusa may at times be quite common in shallow waters of the north Queensland coastline. As appears usual with the Cubomedusae they appear to prefer sheltered seas or beaches, and occur mostly over sandy bottoms, particularly in the early morning and the evening. The Cubomedusae are quite light-responsive, and generally, but not invariably, appear to avoid the surface waters at the midday period of bright sunny days.

Why some individuals die from these stings and others are apparently but little affected remains at present an unsolved problem.

#### OTHERS POSSIBLY IMPORTANT JELLYFISH

The more important jellyfish with a reasonably well defined medical position have been mentioned above. In the Philippines two other genera of jellyfish have been considered as dangerous. The first of these is *Dactylometra quinquecirrha* (Desor 1848) (Fig. 5). Light (1914 a, b) attributes to this species some severe stings seen in Philippine waters. This species is also recorded from the Atlantic coast of North America, and Light states that it is "able to inflict a very severe and in some cases dangerous sting."

Mayer (1910) quotes Dr. H. M. Smith as stating that *Lobonema smithi* Mayer 1910 inflicts severe stings in Philippine waters. Smith (quoted in Mayer, *loc. cit.*) believed that some cases of severe stinging reported

by Old (1908), from Manila Bay, were due to this medusa. Light (1914 a, b) however believed that the effects of *Lobonema* are of little significance, and attributed the stings reported by Old rather to *Dactylometra*.

It is difficult to get reliable reports of the stings from the native populations, and it is also difficult to get properly preserved specimens of the medusae actually responsible for the stings. In the past the fatalities from jellyfish stings must have been largely among primitive fishermen and hunting peoples of the tropical Indo-west Pacific area. Information on stings from such sources is almost non-existent, and only a few cases have been recorded. It has been only with the increase of population of northern Australia in the recent war from the presence of members of the various armed forces, and the post-war increase of the white population in that area that the subject has received any impetus.

#### MARINE STINGS IN NEW GUINEA WATERS

Very little has been written about stings in the waters around New Guinea, for the same reasons as in the preceding paragraph. Cleland (1912) made a brief reference to a sting with vesiculation from a "slimy stuff," in shallow water, British New Guinea. No identification of the agent responsible was made, but it was stated that the effect was "apparently from a jelly-fish."

Dr. Tyson's (1957) report, referred to above, is the second published report of any stinging from New Guinea.

Dr. R. F. R. Scragg, now Director of Public Health, Territory of Papua and New Guinea, has been so kind as to forward to the writer a report on some jellyfish stings, furnished originally from the Director, Fisheries Division, Territory of Papua and New Guinea. In summary that report states that in the d'Entrecasteaux group of islands in New Guinea there is a dangerous jellyfish, called the "burerawa" by the natives. This is described as "sausage-shaped, 15-18 inches long and about 1½-2 inches in diameter, and is conspicuously coloured red and black.

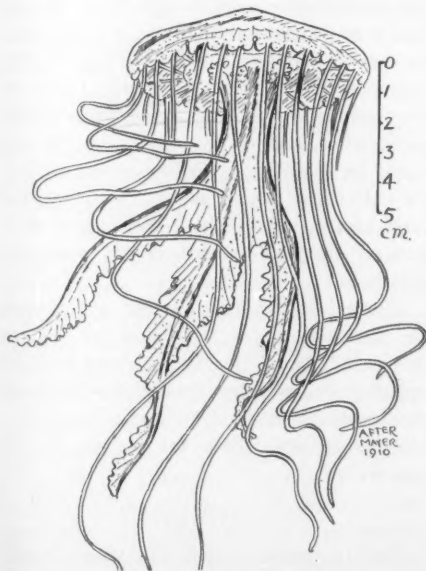


FIG. 5. *Dactylometra quinquecirrha* (Desor 1848) (mature in the "Chrysaora stage") (after Mayer 1910). This jellyfish occurs in the Atlantic and Pacific oceans. In the Philippines it is blamed for severe stings.

From one end a number of threads like cotton extend, and which may form a network. Although the jellyfish (body) itself may be handled without harm, the stinging threads evidently can inflict painful injuries and many years ago a native who dived into the sea and was stung by one of these jellyfish died. The stings left marks like . . . measles."

In June 1956, the report continues, there was a considerable and unexpected occurrence of turtles in the waters of the d'Entrecasteaux group. These turtles suffered a high mortality, quite unexpectedly, for no very obvious reason. The natives of the Doba straits however blamed these deaths on jellyfish, and also attributed the unusual numbers of dead fish ("pike") and dead porpoises to the same cause. No definite proof that this was the case was given. The dead turtles were unmarked either upon their body or on their head and limbs, and their internal organs were described as healthy. "All the turtles were remarkable in being exceptionally fat for the season of the year which is some months past the breeding time." It was considered that the jellyfish to which these deaths were attributed are "normally . . . near the surface."

The description of the "burerawa" given in somewhat suggestive of *Physalia*, but is too vague for any precise identification. The colors of *Physalia* vary, being normally blue or purple, but may be pink, orange, etc. If the term applies to one precise species of medusa, it may later become possible to identify it, if specimens are captured and preserved.

The report continues "In paddling canoes, the d'Entrecasteaux people, when this dangerous jellyfish (burerawa) is found, do not use their normal method of dipping the paddle deeply into the water so that the hand and arm are wet, but instead paddle with shallow strokes, and get away from the area as quickly as possible." Reference is also made in this report to two different types of "umbrella-shaped jellyfish"—the "blue 'wararopa'" and the "white 'vibituitu.'" It is stated that these two forms

can also inflict stings, but much less severely than the "burerawa," and they are much less feared by the natives. Unfortunately, neither of the last two have been forwarded for identification, as well.

Thiel (1928, 1936) recorded a specimen of *Chiropsalmus quadrigatus* Haeckel from "Luschan-Hafen," New Britain (originally referred to as *Chiromedusa debrachiata* Thiel 1928). This record shows at least that a potentially lethal species does occur in New Britain and New Guinea waters. As, however, the boxjellies are practically transparent, and are lightly colored (and that only on the tentacles and gastric filaments), and furthermore are cuboidal or pyramidal, there is no possibility that the "burerawa" is one of them.

One further point should be made. The report summarized above refers to a death of a native in New Guinea waters from diving into a dangerous jellyfish; there was no evidence submitted that the "burerawa" (assuming this term has a precise significance) was responsible—even though from the report it was apparently believed that this was the actual jellyfish involved. Even if the "burerawa" had been occurring freely at the time (and by being conspicuous would presumably tend to be avoided by the natives) there is also the distinct possibility that the native may have dived into a transparent Cubomedusa (boxjelly) and succumbed, without the real culprit being given the blame.

It is hoped that some current studies upon the nematocysts on the skin of victims will cast light on this subject, and give the opportunity for better identification of causative medusae in fatal stings, or in fact other stings where the medusa is not captured.

#### TREATMENT

The treatment of jellyfish stings is still largely empirical and symptomatic. The local residents usually rub the area stung with wet or dry sand. This is a rational procedure, as it will remove the poison-containing nematocysts. Probably a number of these remain

undischarged, still potent, and will discharge under a suitable stimulus.

In the patients seen at Trinity Bay, Queensland, when pain was severe morphia (sulphate or tartrate),  $\frac{1}{4}$  or  $\frac{1}{2}$  grain by subcutaneous injection was given with relief. Stuart and Slagle (1943) were impressed by the cramps seen in severe jellyfish stings (from Portuguese men-of-war in Puerto Rico waters) and reported relief from this symptom following the intravenous therapy of 10 c.c. of 10% calcium gluconate. Alkaline packs were stated to give little or no relief. Old (1908) had used these in the Philippines, on the hypothesis that the toxin was an acid. This however is not the case, and as far as present knowledge allows the toxin is probably a mucoprotein with free or adsorbed hydroxyindoles (Phillips 1956). Old (*loc. cit.*) recorded that the local application of vinegar (a native remedy) was ineffective. Light (1914 a, b) also refers to the local native remedies of sugar and vinegar, locally, but does not mention seeing these used. Hypertonic solutions might conceivably remove some fluid through the punctures or nematocyst threads, but it would appear unlikely these would act unless the surface were considerably abraded. Conceivably also alcohol locally might denature the mucoprotein. However the subject is more one for speculation than the application of exact knowledge at the present time.

If it is believed that the victim has been stung by a potentially lethal jellyfish, then it appears to the writer that wound excision is theoretically justified. If the sting is largely upon the limbs then a ligature should be used. More frequently however the wheals are upon the trunk, and there is no possibility of the effective use of a ligature. A characteristic feature of the fatalities is the intense pain suffered; frequently the victim screams in agony. Unfortunately, however, death may occur in a few minutes—customarily death occurs in from 2-30 minutes. In the past, injections of strychnine have been given to victims when the pulse has become feeble. At present probably adrenalin (1:1000 aqueous) by injection appears justifi-

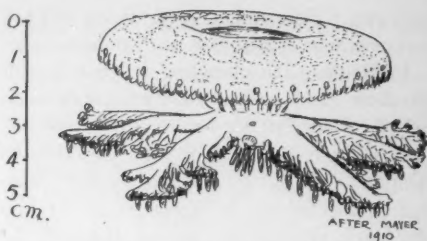


FIG. 6. *Cassiopea xamachana* R. P. Bigelow 1892 (after Mayer 1910), a well known medusa from the Florida—West Indies—Caribbean region. In Aruba, Netherlands Antilles, it is reported as causing severe stings.

fiable in appropriate dosage initially for any possible hypersensitivity (allergic) reaction; noradrenalin also appears justified for the central vasomotor depression.

Unfortunately in these very severe stings there is no specific remedy available, and there is little evidence that there is any really effective non-specific therapy available. In addition to the measures discussed, no doubt oxygen and artificial respiration should be advocated.

One further form of therapy which appears worth while is the use of cortisone or its analogues, either locally or generally. Dr. Philip C. Holzberger, of Aruba, Netherlands Antilles, has reported to the writer that 5-10 mg. t.i.d. of meticorten (for up to seven days) gives effective relief for the local jellyfish stings, attributed to the "luna di awa" in the local (Papiamentu) dialect. Specimens of these jellyfish forwarded to the writer by Dr. Holzberger were *Cassiopea xamachana* R. P. Bigelow 1892 (Fig. 6), a well-known jellyfish of the Caribbean region. Dr. Holzberger has also used 5 minims of liq. adrenalin (1:1000) initially; and Algel 1 teaspoonful six times daily for the nausea and epigastric distress, with gradual reduction in dosage, with excellent results (treatment given up to 7 days).

A résumé of the treatment advocated for a severe jellyfish stinging is set out here. The degree to which they are instituted will depend on whether fatal stings are known to occur in the area. The therapy used must be left to the discretion of the individual re-

sponsible for treatment. A physician will not necessarily be available at short notice.

1) Remove the offending jellyfish if still attached (and keep it for preservation in 5-10% formalin sea-water or formol saline, without compression, for later identification). (It is unlikely to do any damage to the helper. It cannot sting through the thick skin of the palm.) Rub off the tentacles with anything available, e.g. sand. (Preserve the tentacles also if possible.)

2) Inject adrenalin (epinephrin) 7 minims subcutaneously, and repeat as necessary. For cardiac weakness, noradrenalin should be used, as well as adrenalin.

3) Calcium gluconate 10 c.c. of 10% solution, intravenously, for painful muscular spasms.

4) Artificial respiration, and oxygen if available, for depression of respiration.

5) Cortisone therapy appears worth while. Dosage to be left to discretion of attending physician. Local therapy with cortisone also appears worth while. It is suggested that  $\frac{1}{2}\%$  or 1% hydrocortisone ointment be used.

6) If the sting is upon a limb only, death is unlikely to ensue. The use of a tourniquet to a limb should be considered if practicable. The possibility of wound excision should also be considered. Naturally it should only be attempted if it is thought that a lethal amount of venom has been injected. In any case it is unlikely to be effective unless done within a few minutes of the sting.

#### PREVENTION

Prevention is obviously more important in general than treatment after a sting has occurred. At the present time there is no prophylactic substance available. However it is thought that physical prevention of the stings is most important. The most obvious measure is to stay out of the water where dangerous stings are occurring. If this is not possible then swimmers should wear protective clothing. The clothing worn should cover as much of the body as possible, including the limbs. It is not possible to specify the exact thickness of clothing necessary, but probably any closely woven cloth,

between  $\frac{1}{2}$  and 1 mm. thick will give good protection, judging by a preliminary study by the writer of the responsible nematocysts of the two jellyfish considered offering the greatest danger, *Chiropsalmus quadrigatus* and *Chironex fleckeri*.

#### SUMMARY

1) A review is made of the clinical types of jellyfish and related marine stings, with particular reference to a part of the north Queensland coastline used by Australian and United States armed forces during World War II. In that area two clinical types were seen, one with wheals and few or no general symptoms (Type B) due to a many-tentacled medusa, probably the local Cubomedusa or boxjelly, *Chironex fleckeri* Southcott 1956. The other, more frequent, stinging is known as the "Irukandji" sting (of Flecker) (or Type A). Its causative agent is unknown. Reference is also made to stings in New Guinea waters.

2) Fatalities from jellyfish stings appear to be confined to the tropical Indo-west Pacific area. Fatalities are attributed to the Cubomedusae only. In Malaysian-Philippine waters it is believed *Chiropsalmus quadrigatus* Haeckel 1879 is responsible. In northern Australian waters deaths are attributed to *Chironex fleckeri*. There is no documented evidence available of *Physalia*, the Portuguese man-of-war, causing a human fatality. The evidence on this subject is briefly mentioned.

3) Reference is made to other stinging jellyfish—*Dactylometra quinquecirrha* (Desor 1848) of the Atlantic and Pacific Oceans, to the Philippine genus *Lobonema*, and to the Caribbean-Florida *Cassiopea xamachana* R. P. Bigelow 1892.

4) Therapy for jellyfish stings is discussed, and preventive aspects. No specific prophylactic or antivenin is available. A regimen of possible treatment is given, varying with the clinical condition of the patient.

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"NO KIDDING DOC, DON'T YOU THINK IT'S TIME I GOT OUT OF HERE?"

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The Caducean, Tripler U. S. Army Hospital

## Veterinary Medicine in the USSR\*

By

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TEN YEARS ago the prospect of a trip to the Soviet Union appeared as remote to me as a trip to the moon. I'm sure the other members of our delegation felt the same way until a few months ago. Then on July 24 our Russian jet plane came down at the Moscow airport and the trip to Russia became a reality. Who knows . . . in another 10 years we may be having a report from some young scientist of a trip to the moon!

This delegation of veterinarians was one of six agricultural groups which the Department of Agriculture sent to the Soviet Union this year. The trip was arranged under an agreement between the two countries for a general program of exchanges in cultural, technical, and educational fields. Similar teams have come to our country from Russia. This report reflects the combined notetaking and observations of our whole group.

In conversation with Russian visitors to our veterinary medical research laboratories and other veterinary establishments and in discussions with the veterinarians whom we met in Russia, it has been difficult to learn much about their military veterinary services.

As you know, Russia does have a military veterinary corps. Since 1954, the work of the corps apparently has been changed, following the demobilization after World War II and the shift from animal to mechanical transportation. The emphasis has changed to deal more with the sanitary control of meat for the armed forces and less with the handling of horses and other livestock. They point to the threat of atomic weapons and of bacterial agents which might be used by their

enemies as presenting new problems for them.

Organization-wise, this service comes under the jurisdiction of the Ministry of Defense of the central government. According to Russian sources, however, the Military-Veterinary Service, being a part of the State Veterinary Medicine, conducts its work in the closest coordination with organs of the civil veterinary service. Writing in "Veterinariia," a journal of the Russian veterinary medical service, Maj. Gen. A. M. Penionzhko says that the problems of the Military-Veterinary Service and the veterinary medicine of the country necessitates tightening of the contacts between the two services in scientific-research and scientific-practical activities.

Civilian veterinary medical activities in the Soviet Union are guided and controlled by the central government in Moscow through the Veterinary Collegium of the Ministry of Agriculture. It might be called the policy-making body. Each republic also has its Veterinary Collegium and Ministry of Agriculture, responsible to Moscow.

Second in power to the Collegium is the Academy of Agricultural Sciences. It has six departments. One of these, Animal Husbandry and Veterinary Science, has supervisory jurisdiction over three of the largest veterinary research institutes in the Soviet Union. They are the All-Union Institute of Experimental Veterinary Medicine (known as VIEV), the All-Union Research Institute of Veterinary Sanitation and Ectoparasitology, and the All-Union Institute of Helminthology. We visited these in Moscow. Each of the 15 republics has one or more republic research institutes, the number determined by the size of the republic and the livestock population.

We visited a republic research institute in

\* Presented at the Veterinary Section meeting at the 65th Annual Convention of the Association of Military Surgeons, Washington, D.C., November 17-19, 1958.

Leningrad—the Veterinary Research Institute, which was established in 1898. It is the immediate ancestor of VIEV and for many years was the center of veterinary research in Russia. After the Revolution, it was divided. One part was moved to Moscow as VIEV, and the other part—reduced to a regional research basis which also produced a few special biological preparations—remained in Leningrad.

Generally, the activities of these institutes are confined to research, although a few make a limited number of biological preparations. Some also give refresher courses of six weeks' or three months' duration to veterinarians. There are 158 agricultural scientific institutions, and 650 experiment stations and field laboratories.

Animal husbandry research is under supervision of the Academy of Agricultural Sciences. Progress in breeding better quality livestock probably has been retarded by the Lysenko theory that environment's influence is stronger than that of hereditary. The emphasis in cattle improvement is on what the Ukrainians call the universal-type animal . . . equally good for milk and meat production.

It is common practice to import purebred bulls, such as Symmenthal cattle from Switzerland, Holstein-Friesians from Holland, or Jersey bulls, and cross them on the native cattle. Apparently, the breeders soon report the establishment of a new breed as a result of this crossing, to which they give a name, such as the Red Steppe, or the Kastroma, or the Russian Black-and-White.

Artificial insemination is being used widely, not only in cattle but also in sheep, horses, and to some extent, experimentally in swine. It is required in herds where trichomoniasis and brucellosis exist.

Research in animal diseases is conducted in veterinary schools and research institutes. There are also major research institutes in the Ukraine, Byelorussia, Kazakhstan, Uzbek, Turkmen, Georgia, and Azerbaijan.

Many diseases which we know and deal with are reported to occur in Russia, such as

tuberculosis, brucellosis, anthrax, hog cholera, fowl pox, and anaplasmosis. Foot-and-mouth disease is one of their most serious problems. Other diseases which exist there and not here include sheep pox, *Brucella melitensis* in sheep, contagious agalactia in sheep and goats, glanders, and some parasitic diseases.

Most of the schools and laboratories have little more than a minimum of equipment. Improvement is being made as modern equipment becomes available. Some laboratories are equipped with electron microscopes and some are experimenting with isotopes. Some are also beginning to work with tissue culture.

A major deficiency in animal disease research is the apparent lack of facilities for experimental animals, at least near the research centers. Experimental studies involving livestock and poultry were not observed at any of the institutions visited. Repeated requests to see experimental animals and facilities were denied because they were some distance away, and time would not permit.

This suggests that many biological investigations, chemotherapeutic trials, and other experimental control measures are probably pursued largely on the collective and state farms when specific problems arise.

Veterinary parasitology in the USSR seemed to compare more favorably with work in the United States than was evident with any of the other veterinary sciences we observed. Their strong point is definitely taxonomy and systematics, as exemplified by the classical works of the renowned Skriabin and his many students and followers. Their parasite collections, particularly at the All-Union Institution of Helminthology in Moscow, were impressive.

Control activities, including meat and dairy inspections and processing, and production of biological preparations, are also directed from Moscow. The State Scientific Control Institute for Veterinary Preparations is headed by Professor Siurin, who traveled with us and is one of the best in-

formed veterinarians we met in the USSR.

In animal disease control, the principal effort for most infectious diseases is directed toward immunization. This is apparent from the variety and volume of preparations available, and the high priority which seems to be attached to biological production and control activities.

Production of biologicals is handled through bio-combines located in the various republics. The Control Institute provides cultures to the bio-combines and has its representatives in each bio-combine for inspection and testing. Distribution of biologicals to the republics and regional veterinary installations is carried on by the Biological Trust.

Apparently most of the preparations known in the United States and Europe are also known in Russia, and improvements are adopted promptly.

Chemical controls for parasitic infections seem to be those largely developed outside the Soviet Union. Much of their experimentation seems to be an adaptation of known antiparasitic agents and measures to the specific conditions found in Russia.

The Central government's control of meat slaughtering and processing and of dairy products includes jurisdiction over some 3,000 municipal and district control stations. Carcasses moving to market must be accompanied by a certificate from the veterinarian on the farm where the animals were slaughtered. At the market, carcasses are checked mainly for condition. Milk inspection procedures included testing for butterfat, sediment, and bacterial culture.

We visited only one slaughter plant . . . at Alma Ata, in southern Russia. It was reported to be one of the oldest, dating from 1939, with additions in 1945. Procedures seem to be similar to those followed in the United States and Europe. The plant is capable of handling 5,000 sheep and approximately 800 cattle a day on an average, using two 8-hour shifts.

Fifteen veterinarians were assigned to this plant for inspection, both ante-mortem and post-mortem. Animals found to be dis-

eased on ante-mortem inspection are not allowed in the main plant, but are sent to a separate slaughtering house for this purpose.

We were assured that all milk for human consumption is pasteurized. We saw many milk trucks, similar to our bulk tanks, parked on the street dispensing milk to people with buckets to carry it home. Whether or not this milk has been pasteurized was questionable.

The USSR depends on its strong educational program for an adequate supply of veterinarians for employment at State and collective farms, diagnostic laboratories, food inspection stations, and research and teaching institutions. The Government operates 99 agricultural high schools and 34 veterinary schools, widely distributed geographically. We visited four—all located in major cities and in centers of large livestock populations. Some schools of veterinary medicine are combined with zootechnical institutes for the training of veterinarians and animal husbandmen. Three of the four we saw were such.

A total of 30,000 teachers instruct in veterinary and animal husbandry schools, some 14,000 in veterinary medicine. Their primary purpose is the teaching of students, although research projects are conducted, especially during summers.

The ratio of teachers to pupils is highly favorable . . . ranging from 1 to 10 at the Moscow Veterinary Academy to the highly individualized teaching of the Leningrad Veterinary Institute, where the ratio is 1 to 4.

The schools are graduating about 3,500 veterinarians a year. Today some 42,000 graduate veterinarians are working in Russia. There are also about 48,000 veterinary assistants or technicians.

The curriculum of the veterinary medical schools is uniform throughout the USSR, with 5 years in professional education. Students of high scholastic ability may go directly to the professional schools on completion of high school. Students of average ability are expected to spend three years in practical training on a farm before admission to a school of veterinary medicine. In-

creasing emphasis is being given to this practical experience—presumably to discourage development of a bourgeois class.

The schools are highly selective, with admission based on previous scholarship and examinations. At the Alma Ata Zoo-veterinary Institute, for instance, a class of 225 new students is selected from approximately 1,300 applicants. No desirable student is excluded because of personal inability to finance his education. Instruction and lodging are provided without cost and needy students receive a stipend sufficient for food and clothing needs. Students whose parents are financially able to pay their way do not receive government help.

Two graduate degrees are offered. The Candidate of Science requires approximately three years of study and the Doctor of Science from five to ten years of study. In graduate study emphasis is on research. The Doctor of Science conveys honor and usually qualifies the recipient to full professorship on a teaching or research faculty.

Although their libraries are strong in publications in the Russian language, German, French, British, and American periodicals are available. The American Journal of Veterinary Research appeared to be popular and well used. The veterinarians with whom we had contact were familiar with our literature. Many have a reading knowledge of English because they had chosen it for their foreign language requirement during their first 10 years of schooling.

A map of the world gives some comparison of the size and the positions of the United States and the USSR. Russia's population is over 200 million people; the

United States' . . . 175 million. Russia spreads over  $8\frac{1}{2}$  million square miles . . . nearly three times the area of the continental United States, not including Alaska.

One-tenth of its total land area—or 860,000 square miles—is arable. One-fourth—or 770,000 square miles—of U.S. land is arable. Nearly 60 percent of their people live in agricultural villages and 43 percent of these work in agriculture and forestry. In the United States, about 12 percent of our people live on farms. Climate is a major factor—or handicap—governing their agriculture. The southernmost area we visited—around Alma Ata and Frunze—lies between the 40th and 45th parallels . . . like Oregon, The Dakotas, and New York to Bangor, Maine. In Moscow, the temperature averages around 12 degrees F. in January and about 65 degrees in July . . . roughly comparable to Bismark, North Dakota. The crop growing season in most of Russia is short.

In some respects, Soviet veterinary science may lag behind ours, but the Russians are closing the gap. It is essential for us to face the fact that they are determined to surpass the United States on all fronts. Their competitive urge, their singleness of purpose, and their emphasis on education are driving them forward industrially, agriculturally, and scientifically. In the specific field of veterinary medicine, insofar as we could see, they had little from which we could learn. But we could and did learn from their determination to succeed. We dare not minimize their ability and their dedication to a cause—to outstrip the acknowledged leader of the world in this field.



# Flumethiazide, a New Saluretic Agent—Its Use in the Office Management of Patients With Moderately Severe Arterial Hypertension

By

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THE demonstration by Wilkins and Hollander<sup>1</sup> of the anti-hypertensive properties of chlorothiazide has led to the investigation of a family of chemically related agents. Particular interest has been directed toward the possible value of substituting a trifluoromethyl group for the chlorine atom, since the introduction of trifluoromethyl groups in various other classes of pharmacologic agents has often enhanced their potency while diminishing toxicity.<sup>2-4</sup> Kobinger and Lund,<sup>5</sup> in animal studies, demonstrated that one such compound (6-trifluoromethyl-7-sulphamyl-3,4, dihydro-1,2,4-benzothiadiazine-1,1-dioxide) produced the electrolytic effects of a dose of chlorothiazide 15 to 20 times as great. Hobolth *et al.*,<sup>6</sup> confirmed the diuretic potency of this compound in 27 edematous patients and suggested that the dosage need be only about one-tenth that of chlorothiazide to exert identical effects; hypokalemia occurred frequently with both drugs.

Preliminary clinical bio-assay of flumethiazide, a closely related agent (6-trifluoromethyl-7-sulphamyl, 1,4,2-benzothiadiazine-1,1-dioxide), by Moyer and associates<sup>7</sup> in the treatment of edematous cardiac patients indicated that this compound was a moderately potent diuretic with a minimum of side effects and freedom from significant electrolyte imbalance. At dose levels of 2,000 mg. daily, flumethiazide was as effective as chlorothiazide and superior to the oral mercurial chlormerodrin and the carbonic anhydrase inhibitors, acetazolamide and isobutamide.<sup>7</sup> Further studies in small groups of hyperten-

sive patients suggested that blood pressure control could be maintained by substitution of equal amounts of flumethiazide for chlorothiazide.<sup>8</sup>

It is the purpose of this report to present the clinical responses of 45 ambulatory patients with arterial hypertension who received flumethiazide and flumethiazide-Rauwolfia whole root preparations for a total of 2,961 patient-treatment-days.

## MATERIAL AND METHODS

Forty-five office patients comprised the study group. Twenty were men; twenty-five women. All were considered to be suffering from "essential" (primary) hypertension. Twelve patients fell into Grade 2, 30 into Grade 3, and 3 into Grade 4 of the conventional Smithwick<sup>9</sup> classification of hypertensive disease severity. Patients were assigned into the flumethiazide and flumethiazide-Rauwolfia treatment groups if they were initially seen on odd or even-numbered days of the month, respectively. Previously they had been treated with restricted sodium diets, chlorothiazide, course of barbiturates, ganglionic-blocking agents and hydralazine, in a variety of individual combinations. Eleven patients had experienced prior cardiac infarctions, four had suffered cerebrovascular accidents and eleven were in varying degrees of congestive cardiac failure. Nitrogen retention was present in ten patients. No patient had received active medical therapy for at least two months prior to the beginning of these observations.

Initial baseline and serial studies included conventional diagnostic examination and routine clinical laboratory procedures, as outlined by us previously.<sup>10-13</sup> All patients were seen weekly during the period of ob-

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TABLE 1

RESPONSE OF 25 PREVIOUSLY UNTREATED PATIENTS WITH MODERATELY SEVERE HYPERTENSION TO FLUMETHIAZIDE THERAPY ON AN AMBULATORY BASIS

Patient	Age	Sex	Grade (Smith- wick)	Control Blood Pressure			Blood Pressure after Flumethiazide			Dose** (Tab- lets)	Wks.
				S	D	Mean*	S	D	Mean*		
1. V.M.	66	F	II	190	110	136	150	90	110	3	13
2. S.H.	69	M	III	205	125	151	170	120	136	4	12
3. H.M.	59	F	III	195	130	151	165	120	135	3	11
4. H.B.	62	F	III	200	115	143	180	110	133	3	9
5. H.S.	41	F	II	170	105	126	145	85	105	3	10
6. B.K.	59	M	III	195	120	145	165	110	128	4	10
7. V.P.	47	F	III	205	135	158	170	120	136	4	9
8. E.D.	46	F	III	210	130	156	180	115	136	4	10
9. A.P.	63	M	III	200	125	150	175	110	131	4	9
10. F.D.	52	F	II	190	110	136	160	105	123	3	10
11. G.B.	53	F	II	175	120	138	150	100	116	3	10
12. R.D.	63	M	III	190	120	143	160	100	120	4	10
13. A.D.	61	F	III	190	115	140	175	105	128	4	9
14. M.B.	49	M	III	200	140	160	180	125	143	4	10
15. E.L.	71	F	III	190	130	150	155	110	125	4	10
16. G.G.	64	M	III	195	125	148	180	115	136	4	9
17. R.H.	59	F	III	175	110	131	165	95	118	3	10
18. A.Pr.	48	F	III	190	120	143	165	110	128	3	11
19. B.L.	36	F	II	150	110	123	135	85	101	2	9
20. S.L.	47	M	III	195	115	141	175	105	128	4	10
21. W.R.	49	M	III	200	130	153	175	115	135	4	10
22. R.DeB.	68	F	III	195	130	151	165	115	133	3	8
23. J.S.	59	M	II	170	105	126	150	100	116	3	8
24. H.F.	34	M	II	170	110	130	150	100	116	4	7
25. M.Bo.	57			190	115	140	165	110	128	4	9
	56			189.4	120	142.7	164.2	107	126	3.64	243

\* Mean blood pressure is calculated as the sum of the diastolic pressure plus one-third of the pulse pressure.

\*\* Each tablet contains 400 mgms. of flumethiazide and 400 mgms. of potassium chloride.

servation, at approximately the same time of day. All blood pressure and pulse rates were recorded with the patient in the seated position, following a period of casual conversation.

No restriction of diet was imposed. Both the flumethiazide\* and flumethiazide-Rauwolfia\*\* treatment groups were started on one capsule-shaped tablet of the respective

\* Flumethiazide tablets (Squibb) contained 400 mg. of flumethiazide and 400 mg. of potassium chloride, in each tablet.

\*\* Flumethiazide-Rauwolfia Whole Root tablets (Squibb) contained 400 mg. of flumethiazide, 400 mg. of potassium chloride and 50 mgm. of Rauwolfia Serpentina Whole Root (Raudixin) in each tablet.

preparation before breakfast, and one tablet in mid-afternoon. The daily ration was increased by one or two tablets every seven days, taken at the foregoing times of day.

## RESULTS

*Physiologic Response.* Twenty-five patients were assigned to the flumethiazide, and 20 patients to the flumethiazide-Rauwolfia treatment groups on the basis of the day of initial examination.

*Group A. Flumethiazide* (Table 1). These 25 patients were treated for a total of 1,701 patient-treatment-days. The group as a whole exhibited a decrease in average mean arterial blood pressure from 142.7 mm Hg (189.4/120) to 126 mm Hg (164.2/107) at

TABLE 2

RESPONSE OF 20 PREVIOUSLY UNTREATED PATIENTS WITH MODERATELY SEVERE HYPERTENSION TO COMBINED FLUMETHIAZIDE-RAUWOLFIA OFFICE THERAPY

Patient	Age	Sex	Grade	Blood Pressure Responses						Dose Tabs†	Weeks treated
				Control			Treatment*				
				S	D	M**	S	D	M		
1. S.L.	64	M	III	200	125	150	160	110	126	3	10
2. E.S.	57	F	III	190	120	143	165	100	121	3	8
3. R.M.	59	F	III	200	130	153	170	105	126	3	8
4. G.M.	37	M	II	160	110	126	140	85	103	2	9
5. R.C.	31	M	III	185	125	145	155	115	128	3	10
6. S.K.	64	M	III	210	130	156	175	110	131	4	8
7. D.R.	49	F	II	180	105	130	150	90	110	3	7
8. M.S.	65	F	III	210	120	150	170	110	130	4	9
9. L.L.	61	M	IV	240	145	176	180	105	130	4	10
10. G.D.	59	M	III	195	120	145	165	115	131	3	9
11. E.T.	57	F	III	200	115	143	150	100	116	4	10
12. H.W.	56	M	IV	230	135	166	190	115	140	4	8
13. A.G.	54	M	II	180	120	140	145	90	108	3	9
14. M.G.	39	F	II	170	100	123	140	85	103	3	8
15. G.Mo.	59	F	III	190	120	143	160	110	128	3	10
16. R.S.	70	F	III	205	130	155	170	105	126	4	11
17. G.C.	57	M	IV	220	140	166	175	115	135	4	10
18. E.B.	49	F	III	190	100	130	165	85	111	3	9
19. F.I.	64	M	II	175	125	141	145	90	108	3	10
20. R.C.	59	F	III	180	120	140	150	100	116	3	7
	55.5			195.5	121.7	146	161	102	121.3	3.3	180

\* Flumethiazide-Rauwolfia Whole Root.

\*\* Mean Blood Pressure is calculated as the sum of the diastolic pressure plus one-third of the pulse pressure.

† Each tablet contained 400 mgms. of flumethiazide and 50 mgms. of Rauwolfia whole root, with 400 mgmg. of potassium chloride.

the close of the observation period. The final daily maintenance dose of flumethiazide ranged from 800 to 1,600 mg. and averaged 1,456 mg. Flumethiazide requirements remained relatively stable, once the daily ration dose for each patient was determined.

*Group B. Flumethiazide-Rauwolfia Whole Root* (Table 2). Twenty patients received Flumethiazide-Rauwolfia whole root tablets for a total of 1,260 patient-treatment-days. The average mean control blood pressure for this group was 146 mm Hg (195.5/121/7) and fell to 121.3 mm Hg (161/102) under treatment. The final daily maintenance dose ranged from two to four tablets, averaging 3.3 tablets for the group. This represented an average daily ration of 1,320 mg. flumethia-

zide and 165 mg. of Rauwolfia whole root. The maintenance dose of this combination also remained stable during the period of study.

*Clinical Response.* The most consistent symptomatic response occurred in the 11 patients in congestive heart failure who experienced relief of symptoms and clearing of signs coincident with the observed depressor response; digitalization and mercurial diuretics were not required:

*Case 1 (R.DeB.).* This 68-year-old white woman, a known hypertensive of eight years' duration, presented herself with a history of three months' of progressive dyspnea, orthopnea, epigastric distress and dependent edema. The initial examination indicated a tachypneic patient with distended neck veins,

cariomegaly, tachycardia and signs of left and right ventricular failure. The blood pressure was 195/130 mm Hg. There was 2-plus proteinuria; the hemogram was normal. The chest X-ray documented cardiac enlargement, predominantly left ventricular, and pulmonary stasis. The electrocardiogram was interpreted as showing sinus tachycardia and compatible with the diagnosis of left ventricular enlargement. Flumethiazide therapy was instituted, with a final dose of three tablets (1,200 mg.) daily. There was a progressive decrement of arterial blood pressure to 165/115 mm Hg, coincident with which there was diuresis, a 13-pound weight loss, relief of symptoms and disappearance of signs of biventricular cardiac failure. The electrocardiogram was unchanged during the eight weeks of observation; proteinuria disappeared coincident with the clinical response.

Decrease in headache, lessening of palpitation and angina were frequently observed, although no over-all trend could be recorded:

*Case 2 (G.C.).* This 57-year-old white man had been discovered to have hypertension 10 years previously, and had been treated for a myocardial infarction 4 years before his initial visit, with sequelae of dyspnea, palpitation and angina which persisted throughout previous treatment with reserpine, hydralazine and blocking agents. His daily nitroglycerin requirement had averaged 10 tablets for more than one year. Initial findings included frequent ventricular premature contractions, and a Grade 3 apical systolic blowing murmur. Laboratory studies were remarkable only for electrocardiographic evidence of an old antero-septal myocardial infarction and frequent ventricular premature contractions. He was treated with flumethiazide-Rauwolfia whole root tablets with a final daily dose of four tablets. During the 10 weeks of treatment the blood pressure fell from a control of 220/140 mm Hg to 175/115 mm Hg. Coincident with the observed blood pressure fall there was a lessening of angina for which he now requires 2-3 tablets of nitroglycerin daily. Extrasystoles have not been noted on serial study.

*Laboratory Studies.* The initial stages of treatment were notable primarily for improvement in the signs of pulmonary stasis and decrease in heart size noted in the chest X-rays of the patients presenting with congestive heart failure. Reduction in proteinuria, funduscopic improvement, alterations in the electrocardiogram or the degree of nitrogen retention have been less frequently noted. No difficulty was encountered in the

TABLE 3  
SIDE EFFECTS OF FLUMETHIAZIDE AND FLUMETHIAZIDE-RAUWOLFIA WHOLE ROOT TABLETS IN THE TREATMENT OF 45 HYPERTENSIVE PATIENTS

	Patients treated with Flumethiazide (25 patients)	Patients treated with Flumethiazide-Rauwolfia (20 patients)
(1) No side effects	17 (68%)	12 (60%)
(2) Side reactions	8* (32%)	8 (40%)
(a) Leg cramps	3	2
(b) Pruritus	2	2
(c) Diarrhea	3	1
(d) Abdominal cramps	2	3
(e) Weakness	1	1
(f) Depression	—	1
(g) Nasal Congestion	—	2
(h) Weight gain	—	2

\* Expressed as the number of patients having the particular side effect listed. Several patients noted more than one side effect during the period of observation.

treatment of eight diabetic individuals with hypertension. Although investigation of the urinary electrolyte pattern was not carried out in these office patients, serum electrolyte studies disclosed no evidence of hypopotassemia nor hypochloremic acidosis. Hyponatremia developed in one patient receiving flumethiazide.

*Side Effects.* (Table 3). No side reactions were reported by 17 of 25 patients treated with flumethiazide alone. In the remainder, transient leg cramps, diarrhea, abdominal distress, pruritus and weakness were variously observed. Several patients experienced more than one side reaction. Twelve of 20 patients treated with flumethiazide-Rauwolfia whole root tablets were free of side reactions. Symptoms in the others consisted principally of abdominal distress, nasal congestion, weight gain, pruritus and weakness. One patient experienced a mild depressive reaction requiring cessation of therapy. No skin eruptions were noted and no articular signs

or arthralgia were seen in patients of either group.

#### DISCUSSION

Extensive clinical investigation of chlorothiazide has documented its efficacy in the treatment of arterial hypertension, as well as a variety of edematous states.<sup>14-17</sup> Untoward responses, largely in the form of serum electrolyte disturbances, excessive potentiation of other anti-hypertensive agents, dermatologic and hematologic toxic effects, have recently been reviewed,<sup>18</sup> and certain precautions urged concerning its use.<sup>18-20</sup> This experience suggested that modification of the chlorothiazide molecule might be desirable.

Laboratory studies dealing with a trifluoromethyl analogue of chlorothiazide,<sup>21</sup> as well as subsequent treatment of hospitalized patients,<sup>7</sup> were provocative of this evaluation of its possible role in the management of ambulatory patients with moderately severe arterial hypertension. Previous chronic administration of Rauwolfia whole root<sup>22</sup> suggested that there might be value in combining this safe and effective hypotensive agent with flumethiazide. It was hoped that incorporation of potassium chloride into the flumethiazide and flumethiazide-Rauwolfia tablets would serve as a "break" on the development of electrolyte alterations.

The data presented indicated that flumethiazide, with or without Rauwolfia, is a safe preparation for the office management of patients with high blood pressure. Treatment may be adjusted to the requirements of individual patients with stepwise modification of dosage; observation is easily guided with the help of diagnostic equipment and laboratory procedures commonly available in most communities.

While strict "randomization" was not carried out, the flumethiazide and flumethiazide-Rauwolfia whole root patient groups are roughly comparable in terms of age, duration and severity of hypertensive disease, as well as initial blood pressure levels. The 25 patients treated with flumethiazide alone exhibited a decline in mean arterial blood pres-

sure of slightly in excess of 16 mm Hg on an average daily ration of 1,456 mg. of drug. Twenty patients receiving flumethiazide-Rauwolfia combination tablets achieved a fall in average mean arterial blood pressure of approximately 25 mm Hg; this group required an average of 1,320 mg. of flumethiazide daily, indicating that the combination of Rauwolfia whole root with flumethiazide permitted a decrease in the daily requirements of the latter while enhancing the hypotensive effects. Stability of dose requirement was noteworthy, and escape of the blood pressure from under therapy was not seen in this group of patients. Preliminary data derived from flumethiazide-treated patients also indicate the potentiating effect of this agent when administered in concert with cryptenamine, a *Veratrum viride* alkaloid, and cryptenamine-reserpine combinations.<sup>23</sup>

Side effects were noted in about one-third of the group receiving flumethiazide alone. Gastrointestinal symptoms, leg cramps, pruritus and weakness were the most prominent of these side effects, in descending order of frequency. Three-fifths of those treated with flumethiazide-Rauwolfia whole root tablets reported no side reactions. Of the remainder, gastrointestinal complaints, leg cramps and pruritus were noteworthy. Nasal congestion, increased appetite and weight gain were attributed to the Rauwolfia component. The single patient experiencing a depressive reaction was the lone instance in which therapy was discontinued.

Certain other untoward effects encountered with the use of chlorothiazide were notable for their absence in these patients and bear discussion. Three patients who developed skin eruptions while receiving chlorothiazide were free of this complaint when flumethiazide was employed:

*Case 3 (A.Pr.).* This 48-year-old white woman had experienced a satisfactory hypotensive response to chlorothiazide with a drop in blood pressure from 195/130 to 170/115 mm Hg and relief of angina and palpitations. After 3 months of therapy she developed a pruritus and generalized dermatitis which cleared over the next 3 weeks coincident with

chlorothiazide withdrawal. Because of subsequent return of precordial oppression, chlorothiazide was again begun with return of pruritus and rash, within one week of reinstituting therapy. After a three months' hiatus during which anginal symptomatology required the use of 8-12 nitroglycerin tablets daily, flumethiazide was started in stepwise fashion, with a final daily dose of 1,200 mg. There was a fall in the control blood pressure of 190/120 to a treatment blood pressure of 165/110 mm Hg. No skin manifestations have been noted during 11 weeks of continuous therapy.

Gouty episodes, occurring *de novo*, or re-activations of antecedent gout were not seen in any of the patients treated with flumethiazide. Elevation in serum uric acid has been noted by Laragh and associates<sup>24</sup> in non-gouty subjects, and by Cornish<sup>25</sup> and Dinon *et al*<sup>18</sup> in patients with gout receiving chlorothiazide, although clinical episodes of articulate discomfort were not reported. More recently, Oren *et al*<sup>26</sup> have described the development of joint pains in three of 12 patients who revealed significant elevations of blood uric acid levels while receiving chlorothiazide; one case exhibited positive X-ray findings. We had previously noted<sup>27</sup> the development of acute joint signs and symptoms in 11 patients out of 145 receiving chlorothiazide for periods up to 18 months of continuous observation; marked hyperuricacidemia was found in all 11, 4 of whom were known to have had previously diagnosed gout, and 3 of whom had underlying renal involvement with nitrogen retention. Although the flumethiazide and chlorothiazide treatment groups are not numerically comparable, the lack of articular symptoms thus far in patients receiving flumethiazide appears to be of interest, and laboratory studies are in progress in an attempt to delineate possible reasons for this difference.

The regression of evidence of loss of cardiac reserve, decrease in precordial oppression, palpitation and hypertensive headache in patients receiving flumethiazide and flumethiazide-Raudixin suggests that these agents were helpful in many instances. Serial laboratory studies showed no definite pattern during this early phase of observation, although

clearing of the X-ray signs of congestive heart failure and regression of proteinuria in certain instances were recorded.

#### CONCLUSIONS

Flumethiazide, with or without Rauwolfia whole root, appears to be a safe and moderately potent anti-hypertensive agent as observed in the office treatment of 45 ambulatory patients with arterial hypertension. The combination of Raudixin with flumethiazide enhanced the depressor response to the latter. No significant electrolytic effects were observed. Several patients who had experienced dermatologic reactions to chlorothiazide were successfully managed with flumethiazide. Hyperuricacidemia and articular symptoms, previously noted in patients treated with chlorothiazide, did not occur on flumethiazide.

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## NEW USAF HOSPITAL AT MYRTLE BEACH AFB

(Photo on front cover)

The new 50-bed USAF Hospital at Myrtle Beach Air Force Base, South Carolina, was opened on March 1, 1959.

This two-story, air-conditioned hospital offers outpatient service, including clinics in internal medicine, obstetrics, and surgery. Medical, surgical, and obstetrical facilities for inpatient care are located on the second floor.

It is equipped with: a complete medical administrative intercommunications system which enables physicians to dictate medical histories to a central stenographic pool, and which has paging capabilities for locating members of the medical staff; a piped oxygen system which provides oxygen outlets in certain patient treatment areas, thus eliminating the need for oxygen tanks inside the hospital; and explosion-proof electrical outlets in the operating rooms which eliminate the danger of possible explosions from gases or anesthetics.

There is also an audio-visual nurse call system which permits two-way communication between the nurse at her duty station and the patient in his room.

Colonel Paul E. Lance, USAF (MSC), is commander of the hospital.

# Is the Cause of Pes Valgo-Planus ("Flat Feet") Unknown?

By

SIMON J. WIKLER, D.S.C. AND THOMAS HALE, JR., M.D.

ON attempting to make a survey as to whether postural stress in a child could be related to disabled feet, it was discovered that no exact formula existed as to what constituted a disabled foot. We concluded that the literature on foot disability is indeterminate, the cause of foot disability still unknown,—and that medical science seems unaware of this void in our knowledge.

The following review of the literature indicates that this may be true.

Since 1900 the most noted theories on the cause of "flat feet" have been those of Whitman, Morton, Harris and Beath. Yet all these theories conflict with each other and with facts subsequently brought forth.

J. R. Whitman<sup>1</sup> in 1913 theorized that our widespread foot arch complaints were caused by our type of civilization, and that the human foot was bound to turn outward in a fallen arched attitude because of nature's need for a more bracing effect against the "unnatural" hard pavements and the necessity of long hours of standing in many of our activities.

This theory on the cause of our fallen arches has persisted to this day. People, for example, feel they must have shoes with support in them. Whitman's treatment for painful arches was a rigid brace correction for the shoes. Yet according to Dollar,<sup>2</sup> Dye,<sup>3</sup> Hale,<sup>26</sup> giving rigid correction to the arch complainant frequently ends in failure, and is rarely a complete success relief-wise. This does not necessarily disprove the Whitman theory. Obviously, however, positive support is not the complete answer for our arch sufferers.

In 1935 Dr. D. J. Morton,<sup>5</sup> University of Columbia Orthopedic Surgeon, published a widely noted study on the cause of foot disability. He concluded that the human foot was inadequate from the evolutionary point of view, that we are not far enough de-

veloped from four legged animals to stand erect without arch complaints. Morton said that those of us with short great toes are particularly underdeveloped and so more prone to fallen arches.

Morton's theory gained wide acceptance. Many foot specialists became resigned to the belief that the human being has an inadequate foot, and that it is therefore natural for so many of us to have fallen arches.

In 1947 a third major foot survey was made by Harris and Beath,<sup>6</sup> with the medical resources of the Canadian Army. It contradicted the Morton theory that arch weakness would accompany a short great toe unit. Instead, Harris and Beath considered the cause of arch trouble to be of the nature of congenital hypermobile flat feet with short heel cords caused by foot anomalies.

With these conflicting facts and theories, can the Whitman, Morton, or Harris and Beath theories be considered as having solved the enigma of arch complaints in our times?

These foot theories differ from each other, but their proponents belong to a group that agrees that man is inescapably vulnerable to arch trouble in different ways. The theories conflict, however, with the often noted phenomenon that habitually barefooted people have no arch complaints at all.

## ARCH TROUBLE REPORTED ABSENT AMONG HABITUALLY BAREFOOTED

In 1905, Hoffman<sup>7</sup> found that amongst 600 non-shoe wearing primitive people, not a single one had a fallen-arch complaint. He also found that after wearing our shoes their feet commenced to display various defects.

In 1914, Major Munson,<sup>8</sup> in his extensive Army survey on feet, made the observation that non-shoe wearers uniformly have good feet.

In 1930, Dr. Morton<sup>9</sup> himself, in an expedition in Africa, found habitually bare-

footed people had no arch complaints despite having short great toes.

In 1949 Shulman<sup>10</sup> reported over 4,000 cases in the Orient in which non-shoe wearers and even those going barefooted on city paved streets, had practically no difficulty with their foot arches.

Are these estimates correct? Should we all go entirely barefooted?

Of course we cannot. Shoes are necessary to protect against the elements, diseases like hookworm, possible traumatic injuries. But still the following question is unanswered,—do shoes disable our foot arches or do shoes only bring out foot weaknesses that are there already?

#### DO SHOES CAUSE OUR ARCH TROUBLES?

Let us assume, however, that shoes cause all arch trouble—that the barefooted have no arch trouble solely because of the fact that they go barefooted. There is a group of authorities that would take strenuous exception to such a theory—and they have what seem to them cogent reasons for disagreement.

For Example, Schreiber<sup>11</sup> could say that habitually barefooted people often live in cultures that have no processed or refined foods. Dwellers in our shoe-wearing civilizations have predispositions to fallen arches because of weaknesses caused by food deficiencies.

Psychosomatists<sup>12</sup> believe that our shoe-wearing civilizations may be so socially complex that populations suffer chronic nervous exhaustion that could induce weakened feet.

R. Dye<sup>8</sup> says our arch troubles are not due to shoes, but rather to weaknesses from sicknesses like pneumonia or injuries like a sprained ankle.

Kraus<sup>14</sup> points out that the automobile and modern creature comforts make for disuse of the feet and so could produce fallen arches eventually.

On the other hand, Stewart's<sup>13</sup> study could counter the above claims by citing the absence of arch complaints in barefooted Hawaiians who might be considered as having

the same diet, culture and creature comforts as continental Americans, and be prone to the same kind of foot injuries.

Mills<sup>14</sup> could challenge Stewart's study by pointing out the differences in climate and types of illnesses that might reflect themselves in foot weaknesses in a tropical climate as opposed to a temperate one.

Are fallen arches caused by multiple factors—or are they caused by some simple, easily prevented influence we have not yet identified?

What positive information does any doctor have in preventing foot trouble in children in his care?

The fact that a large percentage of children in the United States get foot trouble, despite every precaution taken by their capable doctors,<sup>15</sup> would seem additional evidence that medical science has not identified to everyone's satisfaction the cause and prevention of fallen arches.

#### WHAT PART OF THE SHOE CAUSES OUR ARCH TROUBLES?

Let us assume, however, that our shoes do cause our arch troubles. A search of the literature will show that while a number of doctors believe that our shoes cause arch trouble, none agree on how shoes do it.

Fairweather, an English Army Surgeon, says that our arch troubles are caused by the heels of our conventional shoes which throw the foot off balance. In a book he has written on the subject<sup>16</sup> he advocates wearing heel-less shoes.

Stein, a New York orthopedist, also considers that the conventional shoe causes arch trouble, but disagrees with Fairweather. Stein<sup>17</sup> recommends that a heel be used, but that its shape should coincide with the natural rocker action of the foot. Stein also goes a little more forward in the shoe and blames our shoe shanks for not accommodating the dynamic demands of our foot, so inducing fallen arches.

Wikler<sup>18</sup> disagrees with both of the above and contends the toe part of our shoe is the

principle cause of fallen arches. He says pointed shoes cause compression and loss of ability to spread the toes; that turning outward of the foot in a fallen arched attitude is caused by the body's effort to obtain breadth across the front of the foot to compensate for the narrower, squeezed-together toes. Hale<sup>26</sup> agrees with this theory.

These three are not the only thoughts on the subject. The Patent Office has granted patents for dozens of ideas as to how different shoe features will prevent fallen arches. If all these inventors know what factor in a shoe causes fallen arches, why is it necessary to have so many opposing ideas?

Are health claims of the shoe industry reliable in preventing flat feet? Scientific articles are now beginning to appear which claim that most of these so-called healthful features in shoes are actually harmful.<sup>2,15</sup>

The Federal Trade Commission<sup>10</sup> reports dozens of prosecutions for dishonest claims that are made by members of the shoe industry who advertise "healthful attributes" in their shoes. These include many of the leading manufacturers of children's shoes.

#### FOOT TROUBLE A RECENT DISEASE

Is foot trouble, as we know it today, a recent disease? Does it parallel the inventions in shoe manufacture that made possible a stylish, inexpensive shoe? Such shoes first became widely distributed about 1900. There are few references in our scientific literature to this apparent coincidence of new factory-produced shoes and a rise in arch trouble.<sup>18</sup> But if we could prove that arch trouble actually did rise at that time—if we could discover something in those shoes that caused the trouble—might we find some of the answers to the cause of our own fallen arches today?

In 1890 at a general hospital in New York, arch complaints in all hospital admissions totaled 2.6%. In 1913 arch complaints in the same hospital rose to 29.2%.<sup>1</sup>

The women's pointed shoe of fifty years ago is coming back into vogue.<sup>20</sup> In a widely

distributed book on foot health,<sup>21</sup> the author states that in our civilization fifth toes are no longer necessary, presumably giving people license to crumple their small toes with pointed shoes. Every foot specialist in his practice sees the damage done by the pointed shoes of fifty years ago. On this cause of foot trouble, how can there be any debate?

A professional ice skater designed a shoe over a plaster cast replica of his injured foot.<sup>22</sup> By wearing shoes of this nature people who suffered unrelieved foot miseries for years are now getting relief for the first time. There are all sorts of theories as to why this shoe gives relief. The inventor's theory is that the foot is like a plastic vessel that encloses fluids and must not be compressed anywhere.

The authors cannot understand this theory of the cause of fallen arches. However, we do appreciate the fact that here at least, for the first time in fifty years, is available a shoe that is at least as big as the foot itself. Why do so many theorists on the cause of fallen arches fail to point out that our shoes are not only too small in most cases, but are hardly ever the same shape as our feet?

#### HAVE THE PATHO-MECHANICS OF "FALLEN ARCHES" BEEN ESTABLISHED?

We know that one group of doctors<sup>6</sup> believes that shortened heel cords and relaxed feet are anomalies with which children are born, and that they are an important cause of flat feet. Chandler<sup>23</sup> differs in that he considers shortened heel cords are not anomalies, but are acquired through the habitual use of bed covers and prolonged sitting positions in children.

J. H. Kite,<sup>24</sup> an orthopedist, takes an entirely opposed position; namely that many babies born with a lengthened heel cord and spasms of the outer leg muscles (calcaneo valgus) will end up with flat feet.

Bivings,<sup>25</sup> an Atlanta pediatrician, opposes both of these views by asserting that in over 5,000 children practically every baby was born with good feet.

Wiles,<sup>25</sup> the author of a textbook on orthopedics, says flat feet do not start in the feet but from higher in the body—that flat feet (pes valgus) is nearly always due to faulty posture. Hale<sup>26</sup> disagrees and says that faulty posture is usually secondary to weak arches.

L. Jones,<sup>27</sup> author of a recent and widely read book on feet says that the flattened foot is disabled.

N. C. Lake,<sup>28</sup> the noted English authority on feet, cites many instances to support the opposite idea that the flattened foot is not a disabled foot but is often a good foot,—that it is only limited movement that tells us if a foot arch is bad.

A. Pond<sup>30</sup> has still another idea in that if the great toe is used in walking, the foot must be considered functionally good, whether flattened, limited in movement or not.

A. Fields,<sup>31</sup> in a recent article, says a child weakens its arches by always wearing shoes and not going barefooted. Shands<sup>32</sup> says a child weakens its arches by always wearing shoes.

Emil, Hauser,<sup>33</sup> an author of a textbook on feet, says arch trouble is essentially acquired through increased loads and decreased strength of the foot such as in prolonged standing, obesity, malnutrition, etc. P. A. CasaGrande<sup>34</sup> does not agree with that. He feels that hereditary factors are predominant, such as congenital flat feet, accessory scaphoid bones, anomalies or tarsal bone bars that fuse them together.

#### NO ACCEPTABLE TERMINOLOGY FOR "FALLEN ARCHES"

Every authority on arch trouble we have read, without exception, has a different shade of opinion on what it is, what causes it, and how to treat it. They even call it by different names.

Dickson and Dively,<sup>4</sup> prominent authors on foot disability have coined the name "imbalanced foot," implying a variable state of balance.

Hauser<sup>33</sup> uses the term "static pes valgo

planus" implying a permanent state of disability.

Whitman<sup>1</sup> uses the terms "passive attitude," "abducted feet," indicating an undesirable change in posture but a normal capability of the foot.

Shands<sup>32</sup> uses the term "flexible flat feet" indicating a helpless deterioration of foot posture.

Mercer<sup>35</sup> coins the term "the unstable foot." Hiss<sup>36</sup> in his book uses the term "ped-evert." Nutt<sup>37</sup> in his book calls an early degree of arch disability "weak foot."

The public calls trouble with their arches "fallen arches," "flat feet" and "broken arches."

Can a truly descriptive term for disabled foot arches ever be coined until the mechanics and causes of the disease are known?

#### IS TREATMENT OF FOOT ARCHES SUCCESSFUL?

In Wikler's twenty years of clinical experience he has never met a foot specialist who could offer an absolute cure once arch trouble in a foot has become chronic.

Most arch sufferers wander from one doctor to another getting a variety of treatments based on a variety of theories as to cause.

On this subject, W. R. Miller,<sup>38</sup> a Naval orthopedist, has this to say: "Probably in no other aspects of the field of orthopedic surgery is there more difference of opinion than on the treatment of foot disabilities. . . . Most material written on the subject is a matter of opinion rather than fact, . . . principles and dicta laid down in the books do not give satisfactory results in a large percentage of cases."

A Diplomate of roentgenology<sup>39</sup> in his report does not describe the gross disarray of bones found in the usual foot X-ray. When one of us complained about this, he said, "If I put all the disarrangement of foot bones in a report to a doctor he will ask me, 'What does it mean?' and 'What shall I do about it?' No one knows. Our roentgenological lit-

erature has no explanations and so radiologists gloss over these obvious defects."

A pediatrician from Washington, D.C. says, "I get as many inquiries about feet as I do about food and I don't quite know what to tell our children's parents what to do about it." In the city, in the noted Children's Hospital, the following panel discussion took place:<sup>40</sup> (If positive knowledge existed on prevention and cure of flat feet, this hospital would certainly know of it and practice it.)

A. S. Lloyd speaking (Att. Staff Children's Hospital): "... with a pronated heel at one year of age, I put a heel wedge in the shoe. If a mother has a question in her mind about the child's foot ... I do no harm whatever with a little heel wedge in the shoe."

W. S. Anderson (Prof. Ped. George Washington University) speaking: "If you do not think there is something wrong with the foot at a year why do you treat it? ... with a fat pad in the arch of the foot ... you cannot tell what the arch of that child will be till two years of age."

A. S. Lloyd: "I frequently cannot tell up to six years of age ... If a mother worries about an orthopedic condition ... I do not give her a brush-off ... otherwise they are going on to someone else, and someone else, and someone else, throw money away with the same result ... we follow the child ... and later, as necessary, use further treatment or no treatment."

In the experience of Wikler, children with the very worst feet are those whom he considers may have had good feet originally. Parents unreasonably worried about their toddlers' normal, insecure, fat flat feet insist that their doctor or shoe clerk do something "helpful." The sturdy, inflexible shoes or supportive devices prescribed so distort normal activity that the feet never grow properly. Afterwards, when the disabled child is older, parents will feel no guilt and think that the feet were bad originally.

Pediatricians surely will appreciate precise knowledge or management of children's feet.

#### CAUSE OF FOOT TROUBLE STILL UNKNOWN

Are doctors aware they do not know the cause of foot trouble? We don't think so and for the following reasons:

None of the textbooks preface their discussion on "flat feet" with the usual "the cause of the disease is unknown," as they do with other disease. All the foot authors proceed with their ideas as though they had the ultimate truth. Since most of them differ, we must assume that most of them are not entirely correct.

Of course, foot specialists, like chiropodists and orthopedic surgeons, lead useful careers in that they relieve pain and strain of the arches. To produce relief, knowledge of the cause and prevention of foot trouble is not necessarily essential. However, the management of foot trouble would obviously be improved if the cause of foot trouble was definitely known.

Can it also be that painless arch disturbances are important? Are we aware of our foot imperfections?

Hale<sup>26</sup> says we are so unaware that standard anatomy textbooks have shown distorted feet as supposedly normal.

Are the many foot imperfections, for example, which our radiologist could not explain,<sup>39</sup> influential in causing deterioration in our posture? Postures appear to be uniformly excellent in non-foot disabled people, and uniformly awry in the foot disabled.<sup>18</sup>

It is possible that we have hardly begun to comprehend the distorted foot's pathomechanics, for example, there is much debate on the cause of the hallux valgus and bunion joints. It is only one foot joint and its workings can be seen with the naked eye. Consider the entire foot with its twenty-six bones—with its many attached muscles and ligaments—with the entire column of body weight dependent on it. We can reasonably expect that distortion of the foot will produce a complex mechanical mixup.

## DISABLED FEET AND POSTURAL STRESS

In the consideration of major health problems where foot deterioration could be a vital element, the disabled foot appears to have been totally ignored. Is this because our public health officials are not supplied with information about it? For example, in our recent alarm about the inferior physical capabilities of American children as compared to children in other countries<sup>44</sup>—posture was admittedly a factor. Why was not the common foot disability of American children considered?<sup>20, 10, 18, 26</sup> In the subsequent President's Conference on Fitness of Children—leading experts did not discuss this phase at all.<sup>46</sup> Can it be that our program to achieve greater physical fitness in our children will suffer partial failure because we know so little about their disabled feet?

## HOW ACCURATE ARE OUR SURVEYS OF FOOT DISABILITIES?

For example, the tremendous effort put into the studies of disabled feet, based on the Morton theory, that include tens of thousands of people, is declared invalid by Harris and Beath in their own study.

The Harris and Beath protocol of examination could in turn be considered valueless for the following reasons: No great notice is made of the toe's strength—or the ability to spread the toes—or their compression by shoes—or the density of musculature on the plantar surface of the foot. Shands<sup>32</sup> and Hale,<sup>26</sup> for example, could consider such omissions as grave. Lake<sup>29</sup> could point out that the entire intrinsic musculature of the foot has to do with spreading and bending the toes.

Kite<sup>24</sup> finds much foot abnormality in children under two years of age—Bivings<sup>28</sup> finds hardly any. Bivings and Kite both practice in Atlanta, Georgia. Why the difference?

At a college level in one survey,<sup>46</sup> foot disability is calculated at 65%. In a United States military induction center 39.8% of draftees are rejected for *pes planus*.<sup>48</sup> In the Canadian Army only 1% are rejected.<sup>6</sup> Why the wide differences? Are different

examiners looking for different things in flat feet?

Military recruits notoriously broke down in World War II after their first long hikes. At a great loss of many hours they filled military hospitals. They were medically discharged by the score. Was this due to serious arch disabilities that were not being recognized at induction centers? Does science know so little about feet that military examiners have no formula for telling a good foot from a bad one?

## WHAT DOES THE AVERAGE PHYSICIAN KNOW ABOUT THE CHRONIC FOOT?

Harris<sup>6</sup> states "Foot problems are sadly neglected in medical schools and fare ill in crowded curriculums."

DePalma,<sup>49</sup> a teacher in medical school says, "Medical schools fail almost completely in giving the student a sound grounding and a sane therapeutic concept of foot conditions."

A medical student<sup>42</sup> in a grade A medical school is reported as having a total of only ten minutes instruction on foot conditions in the four years of his college work and two years of his internship.

## WHAT DOES THE FOOT SPECIALIST KNOW ABOUT THE CHRONIC FOOT?

Medicine in general has looked to the orthopedic surgeons to provide facts and research data on foot disabilities. Comroe<sup>41</sup> says, however, "Unfortunately, few orthopedists have made studies of lasts, shoes and their construction and fitting, however, the orthopedist continues to be the recognized authority on the foot."

It should also be noted that orthopedists are also authorities on fractures, deformities from injuries, poliomyelitis, cerebral palsy, backaches, and a host of other conditions of which chronic foot disease is only a small part. As an illustration, of 904 articles published in the organ of the orthopedists, (*Journal of Bone and Joint Surgery*)<sup>50</sup> in a five year period, only seven of those articles were on "flat feet"—and three of the

seven articles gave only brief surgical procedures. That means less than 1% of their space for flat feet.

Chiropodists who are devoted entirely to the treatment of chronic foot disease have not discovered the cause, and are not particularly interested in the prevention of "flat feet" either. This is reflected in Chiropody's Journals.<sup>47</sup> Of 312 articles on foot problems in five years time, only nine have to do with the cause and prevention of fallen arches. In the October 1958 Journal, Rossi<sup>21</sup> a chiropodist and field editor of The Boston Shoe Recorder, stated: "prevention of the disabled foot is ineffective because we don't really know what a disabled foot is."

#### SIGNIFICANT LACK OF RESEARCH ON CHRONIC FOOT DISEASE

More than \$700,000,000<sup>42</sup> has been assigned for research on the cause of chronic disease in the past ten years. Postural disability from foot trouble could be an important influence in chronic disease. To the best of our knowledge, after examining the literature, not one small financial grant has been allotted to determine what causes the common disabled foot arch. In the vast National Institutes of Health, for example, where the causes of chronic and stressful disease are under study, there does not appear to be a single investigator who is interested in the foot.<sup>43</sup>

The authors believe that modern shoes are the overwhelming basic cause of foot trouble. Others have opposed views. Which are true? But in any event we cannot prevent foot trouble until people are confident of its causes. A review of the literature indicates:

1. There is little agreement about the causes of "fallen arches,"

2. None of the current theories is widely accepted,

3. A comprehensive exploration for the cause of this condition has never been attempted in the United States.

We suggest that a comprehensive research effort by the national health agencies or by privately endowed institutions is clearly in-

dicated if we hope to conclusively solve the enigma of so many "fallen arches" in our times.

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## Centralized Food Service Versus Decentralized Food Service

By

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*Chief, Food Service Division, Madigan Army Hospital, Tacoma, Washington*

(With two illustrations)

THE establishment of a Centralized Food Service at this hospital was considered to be economically sound and more efficient than a dispersed Food Service in which Diet Kitchens were located throughout the institution.

In the face of increased work-loads that would result from disasters or epidemics, the additional medical missions that might be placed on the hospital in normal times, and the ever present need for economy in the matter of food and personnel there was a demand for simplification of operational procedures in the Food Service Division.

To change an established system at any institution usually meets with some opposition, even though there is a precedent for such change. Proper orientation and motivation must be accomplished in order to have the change effective with a minimum of time.

Meetings were held with the Professional Officers at their weekly conference, with the Chief Nurse and the Nursing Supervisors to explain the Centralized Tray Service. The response of both groups was praiseworthy, showing a unity of the different services with the Food Service Division. Very few incendiary opinions were noted.

A meeting was held with the Civilian Personnel Staff, and anticipated changes of duties were discussed with those concerned in the change to the Centralized Tray Service. For approximately two months prior to the initiation of that service, various phases were discussed with the personnel of the Food Service Division at regular meetings. The information received at these meetings stirred enthusiasm towards acceptance. There existed a deep seated curiosity which later showed an alert acceptance by the Food Service personnel. Many vague and indistinct

views were brought out into the open by the personnel, and an effort was made to explain each detail to them.

A Hospital Memorandum was printed giving instructions about "Reporting a Correct Meal Census." The meal census form helped to eliminate errors, thus eliminating extra trips between the wards, and main kitchen, and gave a correct census of patients listing those to be served on the wards, in the Dining Rooms, and those patients who were to receive Modified Diets, and nourishments.

A pilot study was made at this hospital when two hot and cold combination carts were received 8 February, 1958 and used on two Orthopedic Wards. The ease and acceptance of these two wards towards the new system inspired us to put the remaining wards on the Centralized Tray System service. The Orthopedic wards had mainly House Diets which facilitated the original initiation. By 20 February, 1958, eleven additional carts were received, ten of which were put into operation by 21 February, 1958. There was a slight delay of one month in converting the service on the Contagion Ward. This was accomplished after Standing Operating Procedures (SOPs) could be put into effect. Paper plates, cups, bowls, were used for the isolation patients.

Selective menus were distributed to the ward patients with a booklet explaining how to check the daily menu. This was used for all House Diets. At the present time we are experimenting with the Select Menu for Modified Diets. The Select Menu also creates more interest for the patient in his diet. The Select Menu is also a factor in better Food-Service-Patient Relationship.

The correct patient census for the number



U. S. Army Photo

FIG. 1. Cold Food Assembly Line.

of trays to be served on the wards was an important factor in eliminating unnecessary trips back to the main kitchen. As stated, this was accomplished through a Hospital Memorandum on "Reporting Correct Meal Census." The patient's Name, Bed Number, and type of diet was written in the proper column on the sheet by the Ward Nurse. Patients to be served in the Dining Room, and the type of diet was also listed, along with nourishments required by certain patients. There are other notations to be made on this census sheet, for example: "Nothing by Mouth," "late tray," or "the patient will be away temporarily."

#### EQUIPMENT

The hot and cold carts were the primary cost in the conversion to Centralized Tray Service. A study made by food costs proved that the purchase of the equipment (hot and cold carts) was an economy measure. Later a heated mobile unit, and a heated self-dispenser for plates was purchased.

#### PERSONNEL

Supervision by the Food Service Division of the assembling of the trays eliminates this responsibility from the Nursing Service. However, coordination of activities and cooperation with the Nursing Service is essential. We found there was a saving in the number of personnel required, and also a better utilization of the manhours in the Food Service Division.

#### REMODELING FOR CONVERSION

There was very little expense or work involved in putting the Centralized Tray Service into effect. The cold food assembly area was moved to the rear of the kitchen, the hot food assembly area remained where it was set up under the Decentralized System. The expense of remodeling proved to be comparatively small. The primary cost was in removing of a partial tile wall to allow better work flow; other expenses included the changing of wall outlets to conform to the new plugs on the hot and cold carts.

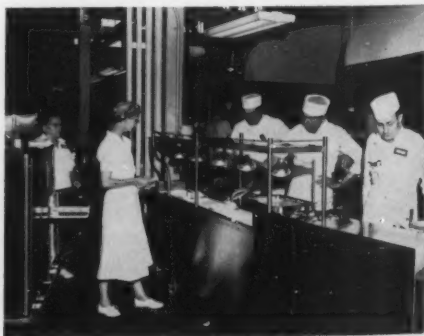
#### CENTRALIZED NOURISHMENT AREA

An area near the front of the kitchen was set up as a Centralized Nourishment area. The nourishments were put up in paper containers with the patient's Name, Bed Number, and Ward. Nourishments were delivered directly to the patient by the Food Service Division in mid-morning, mid-afternoon, and evening. If a shortage of personnel is anticipated at the time for the evening nourishments they are placed in refrigerators in designated areas to be delivered to the patient by the Ward Nurse.

#### ECONOMY EFFECTED

We found that the Centralized Food Service resulted in:

1. Lower Food Cost with:
  - a. Better portion control,
  - b. Less food wasted with the use of the



U. S. Army Photo

FIG. 2. Hot Food Service.

Selective Menu (Patient checks the size portion and only the foods desired),

c. Better control of nourishments.

2. Less personnel with better utilization of man-hours.

3. Savings when thirteen Diet Kitchens were closed showed savings in:

a. Cleaning supplies,

b. Repair and maintenance,

c. Water, electricity and steam,

d. Space—(Diet Kitchens were converted to examining rooms and doctors' offices).

4. Patients' food more palatable—hot food hot, cold food cold—less plate waste.

#### SUMMARY

The conversion to Centralized Tray Service from Decentralized Service was not too

great a problem after everyone had been properly oriented and trained. The economy noted has proved to be worth the cost of the change to Centralized Tray Service. Patients are more satisfied, less food is wasted, better portion control, and food is more attractively served. The interlacing of Production and Service with Ward Food Service has taken place with comparative ease and efficiency.

The lay-out of the kitchen, the fact that Madigan Army Hospital is on one level facilitated the conversion to Centralized Tray Service.

We are constantly experimenting with equipment, testing new methods, and working with the Management Office on improving the operation of Centralized Tray Service.



Effective July 1 the President of our Association was promoted to the rank of major general. General Twitchell is Surgeon, U. S. Air Forces, Europe, APO 633, New York.

The White House recently announced the nominations of Brigadier General Thomas J. Hartford, Deputy Surgeon General of the Army, for major general, and Colonel George M. Powell, MC, Commanding Officer of Madigan Army Hospital, for brigadier general. These nominations will most likely be confirmed by the Senate prior to the receipt of this issue of the Journal.

## We've Made Children Welcome

By

CAPTAIN LEONARD BERLOW, USAF(MSC)<sup>†</sup>

OVER the years hospitals have resorted to traditional practices in many areas of administration. As a result, they have been relatively slow in responding to change. Only during the past few years have we seen a liberalization of visiting hours and policies in some hospitals which allow extended visiting privileges in most areas of the hospital. This was a break with tradition from the 2-4 and 6-8 visiting hours.

One of the long standing traditions in our hospitals has been that of prohibiting children under 12 years of age from visiting within the hospital. This particular practice has seldom been disputed since its purpose seemed clear—to prevent the children from contracting a communicable disease. No doubt "secondary" considerations have been to avoid interruptions of hospital routine and, of course, to keep confusion and noise to a minimum. On the surface, these arguments seem quite valid, but with a little additional attention by the professional personnel, children can easily be kept away from contagious areas. To some there may be a fear that the child will face some psychic trauma seeing the sick and injured; however, this can prove to be a fine opportunity for the youngster to become acquainted with the hospital and in this way lose any groundless preconceived fears.

Certainly each patient is different in some way and requires individual care and understanding, but *all* patients want to keep family ties. Being hospitalized is an unwelcome experience with its strange surroundings, fear, and apprehension. Add to this the fact that the family is suddenly torn apart and we have one of the most unwanted situations that we may have to face.

<sup>†</sup> USAF Hospital Wright-Patterson, U. S. Air Force, Wright-Patterson Air Force Base, Ohio.

We are always concerned with patient morale in our hospitals. What better way is there than allowing children to visit their hospitalized parent thus keeping the family together? Granted, nurses and doctors may be obligated to undergo some extra difficulties, but after all, hospitals are for patients, and if allowing children to visit in any way can encourage recovery, then it should be allowed and tolerated.

This 400-bed Air Force hospital has done just this, and we are most pleased with the results. No longer do we see Daddy on the front lawn of the hospital holding up baby so that anxious Mother may see her child. We have been pleased also to see older patients eagerly await the arrival of children even though they are visiting another patient in the same room. There have been a few minor incidents, but out-weighing these by far are the satisfied parents.

We have not seen a single child become emotionally upset as a result of visiting. Groups of Brownies, Girl Scouts, Cub and Boy Scouts, and similar organizations are encouraged to tour within the hospital. This has proven educational and a valuable public relations factor.

There are certain areas in hospitals which may not be appropriate for children visitors. This hospital prohibits youngsters from visiting in the pediatrics, obstetrics and closed ward psychiatric sections. In addition, the patient's doctor may exclude children if he feels that this would be detrimental in any way to the patient.

Our success with this plan has been favorable, and we are certain that patients are more than pleased with the fact that their hospital stay is a more pleasant one now that the family can count on being together even when faced with a hospital situation.

## EDITORIALS

### Navy Surgeon\*

**R**EAR Admiral Lamont Pugh started his military career in World War I as an enlisted man in the Marines. After the war he completed his medical education and the fascination of a naval career brought him back to military life as a lieutenant, junior grade, in the Medical Department of the Navy.

Here in *Navy Surgeon* the Admiral gives a moving account of his many years of service. His unique similes used in describing incidents in his life, half of which was spent in the U. S. Navy, add zest to this interesting autobiography.

Not everyone can accomplish what Admiral Pugh did. There is only one job as Surgeon General. But everyone could put the enthusiasm into his job that Doctor Pugh did. Proper motivation is necessary. Admiral Pugh was properly motivated by a desire to serve his country and his patients.

In the 141,575 miles he travelled while Deputy Surgeon General and Surgeon General he visited many countries, including Russia. His observations of customs and medical facilities are extremely interesting. His understanding of things not American is one of tolerance certainly not always found in Americans who travel in foreign lands.

The wholesome philosophy set forth in the last chapters of this autobiography contains many points over which we could well ponder for a long time.

Admiral Pugh leaves no doubt in the reader's mind that a career in the Medical Department of the Navy is full of challenges and opportunities for those who are willing to give all while serving their country.

\**Navy Surgeon*, An autobiography by Rear Admiral Lamont Pugh, former Surgeon General, U. S. Navy. J. B. Lippincott Company, Philadelphia and New York. 1959. Price \$5.00.

### Medical Research

**W**E ARE hearing and reading a lot about medical research today and in the next few years we will likely hear a lot more.

While by no means a new subject emphasis is being placed on such research by politicians, physicians, and groups allied to medicine. It is popular to be enthusiastic in this field. It seems proper to stimulate others to be interested in this field.

There is a need for the *devoted* researcher as well as the money for research. There is a need for well equipped laboratories, too. The two must go hand in hand. To expect a stirring discovery to be made under conditions in which the Curies worked is unreasonable in these days when we are spending billions on destructive measures.

Provide the laboratories, provide the money, seek out the devoted and qualified researchers and those younger individuals who have promise in the field of research; then encourage them by giving them enough money to maintain a decent living standard.

We must recognize, however, that not all persons who say they are interested in research are qualified or would be devoted researchers. A clock-watcher in these days of the 40-hour week certainly would not make a good researcher in our opinion. Somewhere along the line such persons must be eliminated in the interests of science.

Even with missiles and atomic clouds on the horizon, these are great days in which to live. It seems that the more we learn the more there is to learn. That is nothing new, either. But the tempo of discovery has been increased. Those who are devoted to learning and those devoted to research, particularly medical research beamed in the direction of relief of pain and suffering, must be encouraged. The more ills we can overcome the better our living will be.

## PROPOSED AMENDMENT TO THE BY-LAWS OF THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES

Action will be taken by the members of the Association of Military Surgeons at the 66th Annual Convention, November 9-11, 1959 on the following proposed amendment to Section 5 of Article XII of the By-Laws:

"In order to provide sufficient capital for meeting contingent or expected payments from the Retirement Fund, the Executive Council (a) may at its discretion pay to the Treasurer of the Retirement Fund from the funds of the Association such amounts from time to time as the Council deems suitable, and (b) may at its discretion from time to time change the percentage of the current income of the Association to be set aside for the Retirement Fund, provided said percentage shall not be less than four percent (4%) nor in excess of eight percent (8%)."

### SECTION 5, ARTICLE XII OF THE BY-LAWS PRESENTLY READS:

"The Retirement Fund shall be constituted by setting aside and paying to the Treasurer of the Retirement Fund Trustees four percent (4%) of the current income of the Association, including all of any income or funds set aside and specified to be for said fund, including accretions on the capital belonging to said fund but excluding accretions on the capital of the Association which are not a part of said Fund."



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## Around the World

(Ser. III, No. 10)

By

CLAUDIUS F. MAYER, M.D.

JASSI, together with the other university towns in Romania, is a stronghold in the national fight against cancer which has gained new strength in that country. During the past year many people were followed up at the various posts and institutes established for preventive oncology. The central direction is provided by the *Oncological Institute* in București which was created almost 10 years ago. It has several branches in the university towns such as Kolozsvár, Jassi, Temesvár and Marosvásárhely. The clinical section of the institute has special departments for medical consultation, diagnosis, radio-chemotherapy and surgery, an oncological outpatient department where more than 200 persons can be seen daily. Recently, an isotope laboratory was also added (Romania's atomic reactor started to function a few months ago). During the period of 1950-1957 the Romanian Oncological Institute gave 135,000 general and medical consultations.

Last year a book was published in Warszawa which includes health reports from various communist countries. According to the reports of the Romanian delegation, the Romanians had been very badly provided with *medical service* before their "liberation." In the rural areas the ratio of doctors to inhabitants was 1 to 16,000. The general mortality in 1925-1947 was between 19-20 per thousand people. The child mortality amounted to 17-18%, even as recently as 1948. After the "liberation," the number of hospital beds increased to 122,620, which is 5.3 beds for 1,000 people. Tuberculosis patients have 21,561 beds at their disposal. The rural districts are divided now into 1,992 medical sections each of which serves an average of 6,300 people. The medical care of the industrial workers has been specially and separately organized. The *industrial*

*plants of Romania* have 946 surgical (field-sher) posts and 593 medical posts. The training and education of the medical profession is going on in 5 medico-pharmaceutical institutes with 15 faculties. At the present time, Romania has—according to this Polish book—21,141 physicians and 5,400 pharmacists, and the ratio of physicians for the whole country is 1:825.

But, how can we believe such figures when from another communist source we learn that the number of Romanian physicians is only 12,500 (in 1957), and the *doctor/inhabitant ratio* is 1:1,372? The same source gives the following figures for the *other European countries*:

Austria: 11,092 physicians (or one physician to 628 inhabitants); Czechoslovakia: 17,571(:737); Western Germany: 69,411(:745); USSR 273,000(:784); Italy: 57,610(:828); Hungary: 11,400(:850); Greece: 8,626(:916); Denmark: 4,769(:931); Norway: 3,616(:938); Belgium-Luxemburg: 9,555(:955); Netherlands: 10,993(:966); Switzerland 5,061(:976); Spain: 29,138(:987); Ireland: 2,921(:1,004); France: 39,356(:1,093); Great Britain: 44,585(:1,149); Sweden: 5,433(:1,328); Portugal: 6,275(:1,385); Romania: 12,500(:1,372); Bulgaria: 4,800(:1,562); Poland: 16,056(:1,650); Eastern Germany: 11,000(:1,665); Finland: 2,296(:1,825); Yugoslavia: 6,548(:2,637); Albania: 100(1:12,600).

Such possible inaccuracies, intentionally or by mistake, can be found in many communist publications. *SOVIET RUSSIA* has been publishing its new "*Large Medical Encyclopedia*" (Bolshaja medicinskaja enciklopedia) in many volumes. From an analysis of the work, one member of the Russian Medical Academy concludes that this encyclopedia is a very unreliable work, full of

serious errors and discrepancies. Statistical figures and biographical dates can be accepted only with "a grain of salt" (*cum grano salis*). Not even the date of I. P. Pavlov's death is given in a uniform way; in the 33rd volume of the encyclopedia he died in 1936, while in the 44th volume he was already buried in 1935. There are also many printer's errors. But the most dangerous is that the dosage of toxic substances, used in treatment, is often incorrect. For instance, the author who wrote the section on "Nitrogen" (azot) recommended 1 ml of a 1% solution of atropine as an antidote in acute ammonia poisoning, instead of 1 ml of a 0.1% solution. Ambroise Paré wrote a thesis, according to this same encyclopedia, on anaerobe infection in the year 1512, yet this renaissance surgeon was only two years old in that year. Indeed, such an encyclopedia, says its Russian critic, is hardly an asset to any country's medical culture.

In a *Bosnian unit* of the Yugoslav Army, an outbreak of *Q-fever* was observed during 1956. When investigation was made to find the source of the infection, it was found that the *straw-mattresses* of the troops were filled with straw which came from a village where people and sheep had high residual titers of *Q-fever* in their blood. It was supposed that the *Q-fever* virus was adherent to the straw, and when the soldiers made their bedding, infected dust was shaken out of the mattresses and inhaled.

Life in the *Arctic and Antarctic regions* entails so much work in traveling and in keeping alive that any added exertion (such as military duties or scientific work) is an additional burden upon the human organism. Hence, the first two weeks of sojourn under Arctic climate or in Greenland on the central Ice Cap may result in a type of *exertion anemia*. Observations show that this is a normo-chromic microcytic anemia. After a few weeks, the body becomes accustomed to the new mode of life, and the blood values return to normal.

Much research goes on in Russia about the *behavior of the human body under Arctic conditions*. At the end of 1957, by a reso-

lution of the Presidium of the Russian Academy of Medical Sciences, an expedition was organized and sent to the settlement of *Tiksi, in the Russian Arctic region*, with the purpose of studying the problem of acclimatization of the people in the Soviet sector of the Arctic. The preliminary findings of this *medical expedition* were just revealed. This time, the expedition was supposed to study also the hygiene and the conditions of healthy life of the original native local population of the North. About 1,500 families (or about 5,000 persons) were interviewed and studied. Comparison of the present data with census figures obtained 10 years ago shows that more and more persons who came to the Arctic region preferred to remain there. The male-female ratio of the newborn remained about the same as before. For the last year of observation, this ratio was 3,567 boys to 3,458 girls. The readings of the arterial blood pressure were different during the polar day and the polar night period. In a group of people within the 20-29 age range, the average values were 106.2/63.1 for the polar night, and 110.1/69.1 for the polar day period. (The difference is not statistically significant.)

Studies of the *capillary resistance* showed that it varies greatly with the vitamin supply (C and P) of the population. This makes it of great importance to arrange a continuous, steady and even supply of vegetables for the people in the North the whole year around. During the polar night, school children show signs of anemia. The average percentage of their Hb is 66.2%, and the average count of red cells is 3.5 million. The blood picture also shows an increase in the eosinophiles, and a drop in the number of monocytes.

The study of *ultraviolet insolation* indicated that for the prevention of rickets in the children, preventive ultraviolet irradiation is also necessary. At the villages where the local physician did not care about such prophylaxis the number of rachitic children reached 90% or more, despite the fact that the local population was fed with sea-food containing large amounts of D vitamin. Graphs of daily temperature changes are

still under study. No effect of the polar night upon the periodicity of menstruation could be observed either in the recently arrived or the native women.

For the study of the physical *thermal regulation* of the body, various observations were made, and experiments were carried out. It was found that the body's thermo-regulation is individual and varied. In some persons the immersion of the hand into freezing cold water for 7-12 minutes will reduce the temperature of the fingers to 3-6°C, while in others such a drop in the local temperature does not occur even after an immersion of 1-2 hours.

About 1,500 adults and 900 school children were surveyed for diseases. It was found that 6% of them were affected with *cardiovascular diseases* (in the compensated stage). Hypertensive heart disease was less than in other parts of the Soviet world. Cases of disturbance of the fat metabolism occurred in 4.7%, those of the thyroid gland in 18-28%. Goiter is definitely a *prevalent disease in the Arctic*. The iodine content of the waters of Tiksi is awaiting study.

The statistics show that the chief *medical indications* for the *evacuation of people from the Arctic* are: 1) in the first month of sojourn, diseases of the cardiovascular system (more than 20%), 2) in the second month, diseases of the nervous system, 3) later on, serious injuries, among them also frostbite (freezing) (3.7%). The ratio of gastrointestinal diseases is relatively low (4.5%). This is perhaps so because the waters are unusually clear in the Arctic (not more than 15 bacteria per ml of water). The drinking water does not get contaminated since it is kept in storage cisterns of a special kind. The iodine content of the water is between 0.5 and 1.5 microgram per liter, and the fluorine content amounts to 0.2 microgram per liter.

Last year, dwellings of 2-3 stories were constructed in the Tiksi area by the Institute of Subarctics. Sanitary examination of these buildings showed that they provide a much better microclimate for living than the previous types of construction.

Russian research in the Arctic has been utilizing the *floating ice-stations*. Nikolai Pavlovics Makarenko is a *young district physician of such an Arctic expedition*. He was interviewed by a reporter who then told about the activities of the young doctor. The physician has a wooden hut, where he is living with two other persons. This hut also contains a small, well-selected collection of medical works, a ready laboratory, and equipment for an emergency small medical office. He holds his hours at this place only when his tent hospital cannot be approached on account of blizzards, cracks in the ice field or for any other reason. His dispensary is in a five-man tent which is heated with gas. A screen separates it into two rooms. The outer room contains an examining couch, working table, modern diagnostic equipment, oscillograph and electrocardiograph. The inner room has an operating table, with strong light above it, complete surgical equipment, a small mobile radiographic apparatus, and an ultraviolet lamp which once a week is used for *irradiation of all inhabitants of the Arctic camp*. There is also a well stocked medicine chest (pharmaceutical chest).

The doctor, who was interviewed by a number of visiting newsmen, stated that they had done *successful operations at each one of the other floating ice-stations*. Thus, for instance, the appendix of a hydrogeologist had to be removed. Three weeks after operation the patient was again at his usual work, which is considered a little longer than the usual length of recovery after appendectomies. It is possible that in the Arctic the normal healing is slowed down due to the lack of sunshine.

At this operation, the roles of an assistant and of the surgical sister were played by a meteorologist and a technician, who both had been through a first-aid course. But, generally, people are *healthy on the floating ice-stations*, except for a few cases of influenza, dislocation of joints, bruises and a few rheumatic complaints. This leaves much time for special studies. Dr. Makarenko is interested in the functional changes of the kidney under

Arctic conditions. He also takes his share in many other works, in launching of oceanographic instruments, in preparing a dinner, etc., or even being the operator of a film-projector for after-dinner entertainment. This man gathered his practical medical knowledge during the Second World War at a battalion aid-station where he, as a 17-year old youth, worked as a first-aid man. After the war, he entered the university, and graduated six years later. In February, 1958, he enlisted as a physician of an Arctic research team.

*Virologists behind the Iron Curtain* decided to organize permanent scientific centers for the coordination of some important problems of virology. The centers are distributed in the various communist countries in the following way: 1) for influenza studies . . . the Ivanovsky Institute of Virology in Moskva; 2) for neurotropic virus infections occurring in natural foci . . . the Czechoslovak Institute of Virology; 3) for Japanese B encephalitis . . . the Virological Department of the Medical Institute of Peking; 4) for poliomyelitis . . . Chumakov's Institute for Poliomyelitis Research; 5) for epidemic hepatitis . . . the Inframicrobiology Institute in București; 6) for virus infections in general . . . the Ivanovsky Institute of Virology; 7) for general virology . . . the Czechoslovakian Virology Institute; 8) for antiviral immunity . . . the Virological Department of the Institute of Experimental Biology of Smorodincev.

Much effort is made in *China* to foment the study of traditional medicine, and to create conditions for further research by young physicians interested in the subject. Courses in traditional Chinese medicine and pharmacy were opened in the medical colleges of Szechuan, Wuhan, Hupei, Lanchow, Soochow, Honan and Sian, also at the Shanghai First Medical College and at the Medical Department of Yeb Pien University.—On the other hand, the Soviet gesture made available the first Russian translation of a work of the technical features and the theory of acupuncture written by Chu Lien, in which the modern author and acupuncturist

combined the traditional technic of this method with the modern anatomical data. As it is well known, the theory of acupuncture recognized 64 varieties of diseases which are treated by pushing the needle into the body at one or more of the recognized 145 acupuncture points. Since the year 1425, many Chinese books were printed both on acupuncture and moxibustion, the latter being an ancient form of Chinese cauterization. (Recently, I examined a Chinese American, who had spent his childhood in Canton. His abdomen showed several small scars, the residues of moxibustion, which he obtained for the treatment of some childhood ache.)

There are in *China* 40,000 physicians trained in the Western way and 500,000 trained in the traditional Chinese medicine. Everything is being done to elevate the ancient medicine to a high new pedestal. *Chinese medicine* is a very complicated matter. It has many branches, and diverging schools. There are specialists (acupuncturists) and herb doctors who use about 2,000 kinds of plant and animal products. None of them practice surgery. In the early years of communism in China, the western ways of medicine were still supported, especially by Ho Ch'eng, head of the Army Medical Corps up to 1949, and thereafter first vice-minister of Public Health. However, at the end of 1955 he was accused of wanting to suppress the traditional medicine. He was severely criticised by the communist Central Committee, yet he answered that the committee does not know anything about science. He continued to eliminate the herb doctors as unqualified people. In 1950, at the first National Conference of Public Health, Dr. Ho invited another physician who was the advisor of the government in 1929 for the suppression of Chinese medicine. Since the end of 1955, nobody heard anything further about these western-minded doctors, but more and more about the communist doctrine that Chinese medicine is better than that of the west.

Then came the communist influence in the direction of Chinese medical research. In the summer of 1958, the *Chinese Scientific*

*Academy of Medicine* held a meeting and decided that in five years' time the cure for cancer had to be found, and found by the administration of Chinese herbs and by the acupuncture of Chinese medicine. The East China Medical College announced that it has already found a way of curing acute appendicitis by acupuncture. Last October a research institute was established in Shanghai for the study of hypertension. Soon, they announced that the best cure for high blood-pressure is a drug derived from the peony family. Another old Chinese doctor came forward with his family secret of curing diphtheria by the herb named "the knee of the ox" (this is the *Achyranthes bidentata* in the Linnean botany). Thus, the unearthing of the treasures of Chinese medicine continues. It is now considered a political deviation if anyone would take a disparaging attitude towards Chinese medicine. It also evoked a Chinese type of sabotage among the doctors, a kind of passive resistance.

A recent law on suppression of prostitution in Japan is causing some worry among Japanese physicians and public health authorities. According to the official statistics, the number of new venereal disease cases is about 720,000 annually. Until now, the prostitutes were considered the source of VD in 70% of the cases. Now, with the abolition of their ancient trade, they are scattered all over Japan, and they will also disseminate the disease of the Venus cult.

In India, certain parts of the country are known as places where cancer of the oral cavity shows a very high incidence. This has been attributed to local habits and distinctive environmental conditions. It has been known for some time that tobacco chewing with betel and areca nuts predisposes to cancer in Travancore, Madras, Bombay, and Andhra provinces. Often, there are lesions of the palate known as *Chutta cancer* which comes from the frequent habit of smoking the cigar with the lighted end inside the mouth. In the Tata Memorial Hospital of Bombay, oral cancers constitute the largest single group (35.9%). Survey of the chewing and smoking habits in this province also

showed that these habits are mostly responsible for cancer of the mouth and of the oropharynx. In Western Uttar Pradesh, the Mainpuri tobacco is suggested as the chief cause of malignancies. Indeed, there is a particular brand of this tobacco, the "Kurari," which was most often reported as the principal factor of producing cancer. Of course, there must be many other intrinsic factors which predispose to oral cancer (e.g., vitamin deficiencies, etc.).

An Ayurvedic Hindu doctor, reading about the three stages of the general adaptation syndrome of Selye, finds that they coincide greatly with the three stages described by *Susruta* many many years ago under the stages of: (a) summation, (b) provocation, and (c) diffusion (corresponding to the modern pathologist's phases of alarm reaction, resistance and exhaustion). Thus, the trend to classify the disease process is but a revival of the Ayurvedic method of classification, proving the old axiom: "There is nothing new under the sun, and we walk where others went."

This year in January the (British) Association of Medical Advisers in the Pharmaceutical Industry organized a symposium on "Progress in the Evaluation of Drugs." It was emphasized that the clinical trials of new drugs are always connected with various difficulties. Not the least among these are the clinician's problems which come from "elderly sisters and inquisitive nurses," who may disapprove of clinical trials as "monkeying about." Of course, the basis of good clinical trials is simply the scientific method. It is one thing to lower the blood cholesterol with a substance, but quite another to announce that this has prevented or cured any disease. Pharmacological studies should only indicate how a drug might be used, but they are never substitutes for clinical trials.

A British pharmaceutical company organized an exhibition to show samples of doctors' hobbies. It was the second such show, and an amazingly wide range of objects and/or products were exhibited. Aside from such rather noble pastimes as photography, tapestry, woodcarving, painting and sculpture,

some English doctors found pleasure in taming chinchillas, in collecting abbreviations from newspapers, in darning socks, in putting ships into bottles, or in collecting labels for matchboxes. About 500 doctors participated in the show last November.

This happened recently in England. A school boy was examined by the local school

doctor, who found a whitish object in the boy's right ear which looked like an old plug of cotton-wool. An otologist was needed to "extract" it from its seat *tight against the drum*. It was *an incisor tooth*. The child then admitted that 12 months before he put the tooth there for "safe keeping." . . . *Multa paucis!*



### CHIEFS OF NURSING SERVICE, U. S. NAVY

(Taken at Conference, Washington, D.C., May 1959)



Official U. S. Navy Photo

**Front Row (L to R)**

Commanders Margaret Haley, Ruth Erickson, Alberta Burk; Captain Ruth Houghton (*Director of the Navy Nurse Corps*); Commanders C. Edwina Todd, Mary Grimes, Gladys Dvorak Larson.

**Second Row (L to R)**

Commanders Dorothy P. Monahan, Judy Wilson, Rita V. O'Neil, Marjorie Von Stein, D. Dorothy Bogdon, Myrtle Warner.

**Third Row (L to R)**

Commanders Anna Danyo, Ruth M. Cohen, Rita Clarke, Maxine Moesser, Anne Egan, Helen Samonski, Jennie Anderson.

**Fourth Row (L to R)**

Commanders Geraldine A. Houpp, Thelma Feezor, Elizabeth Seidle, Ida K. Thompson, Rita Brochtrup, Veronica Bulshefski, Norma Stickles.

## NOTES

Timely items of general interest are accepted for these columns. Deadline is 1st of month preceding month of issue.

### Department of Defense

*Ass't Secretary* (Health & Medical)—HON. FRANK B. BERRY, M.D.

*Deputy Ass't Sec'y*—HON. EDW. H. CUSHING, M.D.

#### NEW TYPE GAS MASK

The canisterless mask developed by the Army Chemical Corps has been adopted by the Department of the Army, the Marine Corps and the Navy Bureau of Docks as a standard item of issue.

This mask is said to afford protection against chemical and biological agents and radiological particles. It has a lower breathing resistance, superior vision, and better speech transmission. The external canister is eliminated and instead pads of a pliable material are molded into the facepiece of the mask.

Current stocks of previous types will be replaced as they are depleted after the new mask becomes available in 1960.

### Army

*Surgeon General*—MAJ. GEN. LEONARD D. HEATON

*Deputy Surg. Gen.*—MAJ. GEN. THOMAS J. HARTFORD

#### GENERAL OFFICER ASSIGNMENTS

Major General Alvin L. Corby, who has been Surgeon of U. S. Army Europe, has been assigned to command Valley Forge Army Hospital, Phoenixville, Pa., effective August 15. General Gorbey was succeeded in

his European assignment by Major General James P. Cooney.

Brigadier General James L. Snyder, who has been in command of the Valley Forge Army Hospital, has been assigned to command Brooke Army Hospital, Fort Sam Houston, Texas. He succeeds Brigadier General Clement St. John who has been assigned to Walter Reed Army Medical Center as its Commanding General.

#### NEW EXECUTIVE OFFICER SGO

Colonel John H. Voegtly, MC, has replaced Colonel Bryan C. Fenton, MC, as Executive Officer in the Office of the Surgeon General. Colonel Voegtly had been Executive Officer at Walter Reed Army Hospital.

The new executive officer is a graduate of the University of Pittsburgh School of Medicine (1937). After graduation he served an internship at Walter Reed Army Hospital. During World War II, Colonel Voegtly served as planning officer in the Office of the Chief Surgeon, Headquarters, European Theater of Operations. Upon his return to the States he was assigned to the Surgeon General's Office. He specialized in internal medicine, completing his residency in that field at Walter Reed Army Hospital. Subsequently he was assigned to serve as Plans and Operations Officer in the Medical Section, Seventh Army, Germany.

As part of his new assignment Colonel Voegtly will supervise the operation and management of the Army Surgeon General's Office and will direct the Army Medical Staff and Administration Program.

#### CHIEF MEDICAL SERVICE CORPS

Colonel Roy D. Maxwell became Chief of the Medical Service Corps of the Army on July 1. He succeeded Colonel Bernard Aabel whose term of office expired.

Colonel Maxwell is an authority on nuclear radiation. Since 1957 he has been As-



U. S. Army Photo

COL. ROY D. MAXWELL, MSC, USA

assistant for Nuclear Warfare Instruction and Casualty Studies, Army Medical Service School, Brooke Army Medical Center, Fort Sam Houston, Texas. He received his A.B. degree in chemistry at Oklahoma City University and then continued his studies at the University of Iowa where he earned his M.S. and Ph.D. degrees in organic chemistry. He has done graduate work in biochemistry, radiochemistry and biophysics.

In 1946 Colonel Maxwell served as Radiological Safety Officer in the Atomic Bomb tests at Bikini. Since that time he has attended many tests of nuclear and thermonuclear weapons in the Pacific area and at the New Mexico proving grounds. From 1949 to 1955 he held important positions at the Walter Reed Army Institute of Research, Washington, D.C.

## SGO ASSIGNMENTS

Colonel Charles W. Gollehon, VC, has been named Chief of the Meat and Dairy Hygiene Branch of the Veterinary Division, Office of the Army Surgeon General. He will supervise the Army Veterinary Food Inspection Service.

Major Stephen E. Akers, MSC, has been assigned to the Surgeon General's Office

as Assistant Chief of the Medical Service Corps Career Planning Unit.

Major Isabel S. Paulson, ANC, has been assigned as coordinator of the Army Nurse Corps and the Army Medical Specialist Corps Officer Procurement Programs. She succeeds Lt. Colonel Mildred I. Clark, ANC.

Major Jeanne M. Treacy, ANC, has been assigned to the Personnel and Training Division as Assignment Officer of the Army Nurse Corps Section.

Captain James E. Hertzog, MC, has been assigned Assistant Chief of the Review Branch in the Physical Standards Office.

## NUCLEAR ENERGY REACTOR FOR WRAMC

Walter Reed Army Medical Center will have installed by the summer of 1960 a 50,000-watt nuclear energy for biological research and medical treatment.

This reactor which will be of the "solution" type will produce gamma rays, neutrons, and radioisotopes. The over-all dimensions of the 450 ton reactor will be approximately 20 feet long, 16 feet wide and 26 feet high. There will be 5 feet of high density concrete for shielding.

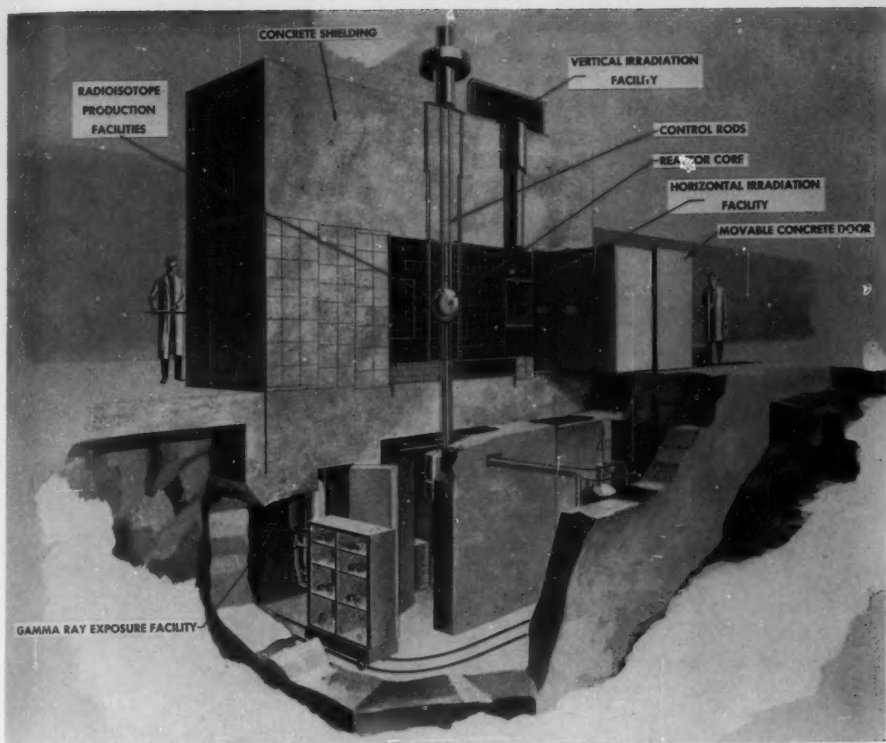
The "solution" is seven gallons of uranyl sulfate, highly enriched in Uranium 235, which will be in a 16-inch diameter stainless steel core installed inside an 8x5x5 foot stack of graphite "logs." The rate of fission will be adjusted by control rods of boron-carbide which are moved in and out of the core area.

The Walter Reed Army Institute of Research will use in its research products produced by the reactor and the Walter Reed Army Hospital will use the isotopes in its study and treatment of certain types of patients.

It has been pointed out that there will be no danger to the community as there will be no harmful particles, fumes, or smoke that will be exhausted into the atmosphere or public disposal systems.

## EXECUTIVE OFFICER WRAH

Colonel Conn L. Milburn, Jr., has been named Executive Officer of Walter Reed Army Hospital.



Atom Int.—Div. N. A. Aviat., Inc.

Cut-away drawing of 50,000-watt nuclear research reactor. Designed specifically for biological research and medical treatment, the "solution" type reactor will be used by Walter Reed Army Medical Center primarily to study the effects of nuclear radiations on living organisms.

Doctor Milburn, a graduate of Tulane University School of Medicine, entered military service in 1935. During World War II he served in the European Theater, and after the war specialized in pediatrics. He is a Diplomate of the American Board of Pediatrics and of the American Board of Internal Medicine; a graduate of the Army Medical School; Medical Field Service School; Quartermaster Motor Transport School; Command and General Staff School and Strategic Intelligence School. In 1956, he was awarded the degree of Master of Hospital Administration by Baylor University, Waco, Tex., and the following year received a British Diploma in Public Health from the Royal College of Physicians and the Royal College of Surgeons.

#### HONOR GRADUATE

Captain Robert J. T. Joy, MC, was the recipient of the Hoff Medal which was presented to him by Colonel Tyron E. Huber, Deputy Director of the Walter Reed Army Institute of Research, Washington, D.C.

Doctor Joy attained the highest class proficiency in a class of seven in the Sixth Military Medicine and Allied Sciences Course. The nine-month course is for medical officers who have completed residency training in a specialty.

The Hoff Medal was originally established in 1897 by Colonel John Van Rensselaer Hoff in memory of his father, Colonel Alexander H. Hoff.

#### COMMANDS MARTIN ARMY HOSPITAL

Colonel Bryan C. Fenton, MC, is the new

Commanding Officer of Martin Army Hospital, Fort Benning, Georgia. Prior to this assignment he had been the Executive Officer in the Office of the Surgeon General of the Army.

Colonel Fenton, a native of Nebraska, is a graduate of the University of Nebraska School of Medicine. He entered military service in 1935. During World War II he served in the European Theater. During his military career he has served several times in the Office of the Surgeon General and has been a member of the faculty of the Army Medical Service School, Fort Sam Houston, Texas.

#### DEPUTY COMMANDER BAH

Colonel John H. Haber, MC, formerly Commander of the U. S. Field Medical Service Development Unit at Brooke Army Medical Center, Fort Sam Houston, Texas, has been assigned as Deputy Commander, Brooke Army Hospital.

He was commissioned in the Army Medical Corps in 1936, four years after his graduation from the University of Nebraska College of Medicine. During World War I, he served in Europe with the 11th Evacuation Hospital and later became Assistant Surgeon, Headquarters, Seventh Army. During the Korean Conflict he was Surgeon of the IX Corps, later became Surgeon of the 2nd Logistical Command at Pusan, and in 1953 became Surgeon of the 118th Army Hospital in Japan. He is a graduate of the Army War College.

#### TEST PAPER CLOTHING

At Brooke Army Hospital, Fort Sam Houston, Texas, tests are being made on disposable paper-base clothing items to determine their adequacy for hospital use.

The following items of paper are being tested: Surgeons' caps, surgical gowns, jackets and trousers; nurses' scrub gowns, caps and floor uniforms; operating-room boots, patients' examination gowns, dental and patients' bibs, and surgical masks.



U. S. Army Photo

#### PERSONNEL DEMONSTRATE USE OF PAPER CLOTHING

#### COMMANDS 67TH MEDICAL GROUP

Colonel John W. Raulston, MC, formerly Deputy Commander of Brooke Army Hospital, Fort Sam Houston, Texas, has taken command of the 67th Medical Group, Brooke Army Medical Center.

A graduate of the University of Tennessee Medical College, he was commissioned in the Regular Army in 1936. Serving with the 12th Medical Battalion of the Philippine Division at the time the Japanese made their invasion of the Philippines, Colonel Raulston became a prisoner of war and was confined in the Philippines, Formosa, and finally in Mukden, Manchuria, where he was released following the surrender in August 1945.

The 67th Medical Group, which Colonel Raulston now commands, includes seven combat ready units: The 9th and 47th Field Hospital; the 24th Evacuation Hospital; the 45th Surgical Hospital; the 32nd Medical Depot; the 82nd Helicopter Ambulance Detachment; and the 712th Preventive Medical Company.

#### AWARDED D.S.C. DEGREE

Dr. David B. Dill, Deputy Director of Medical Research at the Army Chemical Center, Maryland, when awarded an honorary doctor of Science degree by the president of his alma mater, Dr. Arthur G. Coons, Occidental College of California, was

cited as "chemist, physiologist, researcher, professor, author, servant of his country and starred man of science."

Dr. Dill spent 20 years on the faculty of Harvard University and helped establish the Fatigue Laboratory there. During World War II he served as an officer in the Army Air Corps and the Quartermaster Corps. Now he is a colonel in the Air Force Reserve. He holds the Legion of Merit and the Commendation Ribbon.

#### PHYSICAL FITNESS TEST

A minimum standard for the physical fitness test has been established by the Army. The test will be applicable to all personnel regardless of duty assignment.

The minimum standard is the first ever adopted on an Army-wide basis and applies only to individuals. It is hoped that by the adoption of a minimum standard those in poor physical condition will be motivated to raise their level and that those who have attained the required level will be encouraged by that attainment to maintain their physical fitness.

Men over 40 will be permitted but not required to take the test. Persons over 30 will be awarded one point per event for each year in excess of the 30-year mark.

#### NEW TERMINOLOGY

The term "Military Government" has been eliminated from the Army terminology and all Civil Affairs Military Government units, offices and functions will now be known simply as "Civil Affairs."

#### BOOK AVAILABLE

*Radiation Preservation of Food*, a 475-page book which contained all the information accumulated by the Army Quartermaster Corps during its first four years of pioneer research into the use of ionizing radiation for preservation of food is now available.

The volume, PB 151493 may be obtained from the U. S. Department of Commerce,

OTS, Washington 25, D.C. for \$5.00 per copy.

## Navy

*Surgeon General*—REAR ADM. BARTHOLOMEW W. HOGAN

*Deputy Surgeon General*—REAR ADM. EDWARD C. KENNEY

#### APPOINTED CHAIRMAN

Rear Admiral Bartholomew W. Hogan was recently appointed North American Chairman of the Pan American Medical Association's Section on Military Medicine.

#### ASSIGNMENT BUMED

Captain Donald R. Childs, MC, formerly on duty at the U. S. Naval Hospital in Philadelphia, has been assigned as Director, Publications Division, Bureau of Medicine and Surgery, Washington, D.C.

Captain Gerald J. Duffner, MC, has been assigned as Director, Submarine Medicine Division.

Lieutenant Commander Forbes H. Smith, MSC, has been assigned as Head, Internal Review Section, Fiscal Systems Branch, Comptroller Division.

Captain A. R. Frechette, DC, as Deputy Chief of the Dental Division.

Captain W. R. Stanmeyer, DC, Head of Professional Branch, Dental Division.

Commander Mary C. Grimes, NC, as Head, Nurse Corps Reserve Liaison Branch, Nursing Division.

#### RETIRED

Rear Admiral James R. Fulton, Medical Corps, USN, was placed on the retired list of naval officers June 15, 1959, after 34 years active service in the Medical Corps of the Navy. His last assignment prior to retirement was District Medical Officer, Fourth Naval District.

Born in Seattle, Washington, Admiral Fulton studied medicine at Harvard Medical School receiving his degree of Doctor of Medicine in 1925.

Former assignments include: Fleet Medical Officer on the Staff of the Commander in Chief, U. S. Pacific Fleet; Commanding Officer, U. S. Naval Hospital, Memphis, Tennessee; District Medical Officer, Thirteenth Naval District; and Inspector General of Medical Department Activities in the Bureau of Medicine and Surgery, Navy Department.

Rear Admiral Alfred R. Harris, Dental Corps, U. S. Navy, closed out a career of more than thirty-five years of active service on June 1, 1959. Entering upon active duty as a Private First Class in the U. S. Army, as a Flying Cadet, in October, 1917, he advanced in rank to Second Lieutenant in the Signal Corps upon completion of flight training. He ended his Army service in August 1919. Admiral Harris received his dental degree from the College of Dentistry, University of Nebraska, in June 1923, and a year later was commissioned Lieutenant, Junior Grade, in the Dental Corps, U. S. Navy. He is a Fellow of the American and International College of Dentists, a member of the American Dental Association, and an honorary member of the Pennsylvania State Dental Society.

He served on many ships and stations during his career among which were the USS West Virginia, USS Arizona, USS Relief, and the USS Washington. Among other assignments he served as Staff Dental Officer to the Commander, Service Force, Pacific Fleet, and as the District Dental Officer of the Fifth, Ninth, and Fourteenth Naval Districts. Prior to his retirement, Admiral Harris was the District Dental Officer, Ninth Naval District.

His official address is 1980 C Street, Lincoln, Nebraska.

The following Medical Service Corps Officers have been placed on the retired list of officers: Commanders Joseph W. Collins and Herman B. Tidwell; Lieutenant Commanders Julian H. Bradberry, Paul H. Hatfield, Clarence G. Heiland, George W. Richtmyer, Newell Shepherd, and Calvin F. Wallace.

The following Medical Corps Officers

have been placed on the retired list of officers: Captains Kenneth P. Bachman, George M. Bell, John H. Cox.

Commander Ellen N. Dolloff, NC, who has been Chief of Nursing Service at the U. S. Naval Hospital, Jacksonville, Florida, was placed on the retired list on July 1, after 24 years of active service.

#### TRAINING COURSE FOR FOREIGN NURSES

An annual Military Assistance Naval Training Orientation Course for Military Nurses of Friendly-Allied Countries has been formulated by the Office of the Surgeon General of the Navy. The first class which will accommodate twenty nurses will be held at the National Naval Medical Center, Bethesda, Maryland, beginning September 3, 1959. The course will run for ten weeks.

The course has been established in response to many requests from friendly-allied armed forces desiring to send nurses to the United States for further professional training.

#### COURSE IN ENDODONTICS

A new extension course in endodontics (NAVPERS 10407) is now available to Dental Corps Officers, both Regular and Reserve. It is designed to serve as a short post-graduate level review of the subject rather than as a comprehensive introduction to endodontics.

The course materials include 3 sets of 2 by 2 inch transparencies which may be used in a pocket viewer or projected on a screen. There are three assignments in the course.

Requests for enrollment should be addressed to the Commanding Officer, U. S. Naval Dental School (Code 5), National Naval Medical Center, Bethesda, Md.

### Air Force

*Surgeon General*—MAJ. GEN. OLIVER K. NIESS

*Deputy Surg. Gen.*—BRIG. GEN. JOHN K. CULLEN

## BECOMES DEPUTY SURGEON GENERAL

Brigadier General John K. Cullen became the Deputy Surgeon General of the Air Force on August 1. He has replaced Major General Olin F. McIlnay who retired.

General Cullen, a native of Pittsburgh, Pennsylvania, received his B.S. degree (1930) and his M.D. degree (1932) from the University of Pittsburgh and then served his internship at Western Pennsylvania Hospital in that city. He entered on active duty in 1933 as a Reserve Officer in the Civilian Conservation Corps and in 1934 became an officer in the Regular Army Medical Corps. In 1941 he was assigned as Assistant Surgeon for the Second Army at Memphis, Tennessee, and three years later was named Surgeon.

In 1945 he became Deputy Surgeon of the Eighth Army in the Southwest Pacific and one year later was assigned as Director of Public Health and Welfare, U. S. Army Military Government, in Korea. He was transferred to the Department of the Air Force at the time of its establishment.

He has served both as Deputy Director and Director of the Plans and Hospitaliza-

tion Directorate of the Office of the Surgeon General, the latter position being that which he was assigned to prior to becoming Deputy Surgeon General.

General Cullen is rated as Senior Flight Surgeon and is board certified in aviation medicine.

## GENERAL MCILNAY RETIRES

Major General Olin F. McIlnay who has been Deputy Surgeon General of the U. S. Air Force, retired on July 31 after more than 30 years active military service.

General McIlnay, a native of Polo, Illinois, received his B.A. degree from Cornell College of Iowa in 1924, and his medical degree from the University of Iowa in 1928. He then entered on his medical internship in the Army as a Reserve Medical Corps Officer. On completion of the one-year internship at Letterman Hospital, he was commissioned in the Regular Army Medical Corps.

During World War II he served as Staff Surgeon for the Eighth Fighter Command and the Second Air Division in England. His service is marked with many important assignments, one of which, Director of Plans and Hospitalization in the Office of Surgeon General, he held from 1952 to 1957 prior to his appointment as Deputy Surgeon General.

He is rated as Chief Flight Surgeon and is board certified in aviation medicine. He has been awarded the Legion of Merit with Oak Leaf Cluster, the Bronze Star Medal, and the Croix-de-Guerre with Palm.

For the present his address will be 8501 Woodhaven Blvd., Bethesda, Maryland.

## PLANS &amp; HOSPITALIZATION ASSIGNMENTS

Colonel Raymond T. Jenkins, USAF (MC), became Director and Colonel Herbert H. Kerr, USAF (MC), became Deputy Director of the Plans and Hospitalization Directorate of the Office of the Surgeon General on August 1.

Colonel Jenkins, a native of Kinston, North Carolina, and a graduate of the Duke University Medical School (1935) entered



*Official Air Force Photo*

BRIG. GEN. JOHN K. CULLEN, USAF (MC)

military service in 1939. During World War II he served in the Southwest Pacific Theater. During the Korean Conflict the 13th Medical Group which he commanded received the Distinguished Unit Citation. He is rated as Chief Flight Surgeon.

Colonel Kerr, a native of Oxford, Pennsylvania, received his A.B. degree from the University of Alabama in 1936 and his M.D. degree from the University of Pennsylvania in 1938; also a B.S. degree from the latter university in 1932. He served his internship at St. Luke's Hospital in Bethlehem, Pa. In 1939 he entered active military service in the Army Medical Corps, later transferring to the Air Force Medical Corps upon the establishment of the Department of Air Force.

During World War II, Doctor Kerr commanded field, evacuation, and general hospitals in the European Theater, and in 1945 became Deputy Surgeon in the Mediterranean Theater. He is a graduate of the Air War College and is rated as Senior Flight Surgeon.

#### FIFTH AIR FORCE SURGEON PROMOTED

Brigadier General Charles H. Morhouse, Fifth Air Force Surgeon (APO 925, San Francisco) was recently appointed to that rank.

General Morhouse, a native of Ticonderoga, New York, received his medical degree from the University of Vermont in 1932 and then entered the Army as a Reserve Officer for his internship. In 1933 he received his regular commission in the Army Medical Corps. He was appointed flight surgeon in June 1936 after training at the School of Aviation Medicine.

During World War II he was personal aide and physician to General Douglas MacArthur at Corregidor and Australia. Following the war he attended Harvard School of Public Health and received his Master of Public Health degree in 1947. He was then assigned to Randolph Air Force Base where he became the Director of the Department of Military Medicine. At the time of the establishment of the Department of Air Force

General Morhouse transferred to its medical service.

#### CHANGE IN CURRICULUM

The Primary Course in Aviation Medicine, already given to 9,186 doctors (including 334 foreign) will be changed somewhat in keeping with recent advances, according to Colonel Harold V. Ellingson, Director of Education and Plans, School of Aviation Medicine, Randolph Air Force Base, Texas.

Nine hours of the revised course will cover medical problems of caring for people involved in missile launching activities. Five hours will be devoted to emergency surgical care related to aircraft accidents and surgical disorders affecting flying personnel. Increased hours will be allotted to Preventive Medicine.

New material which will deal with personal flying equipment has been added to the course on physiological training. And in the field of radiobiology instruction will be given on radiation hazards and instruments for measuring radiation in view of new equipment.

The course which had been 283 hours will be increased to 297 hours.

## Public Health Service

*Surgeon General*—LEROY E. BURNEY, M.D.  
*Deputy Surg. Gen.*—JOHN D. PORTERFIELD, M.D.

#### RETIRED

Dr. Otis L. Anderson who has been Assistant Surgeon General for Personnel and Training, U. S. Public Health Service, retired July 1, after 30 years of active duty.

Following his graduation in medicine in 1929 at the University of Nebraska College of Medicine Dr. Anderson entered the Public Health Service as an intern at the Service's Hospital, Baltimore, Maryland. For five years prior to his last position he was Chief of the Bureau of State Services, one of the three major operating bureaus of the Service.

Dr. Anderson has accepted a position with

the Washington office of the American Medical Association as Medical Liaison Representative. His home address is 6607 Broxburn Drive, Bethesda, Maryland.

#### APPOINTED TO CANCER COUNCIL

The Surgeon General of the Public Health Service has appointed the following physicians to the 12-member National Advisory Cancer Council: Dr. Paul Magnus Gross, Duke University; Dr. Stanhope-Bayne Jones, Washington, D.C.; and Dr. Henry S. Kaplan, Stanford University.

#### MEDICAL RESEARCH SUPPORT

Dr. Aims C. McGuinness, Special Assistant (for Health and Medical Affairs) to the Secretary of Health, Education, and Welfare, in giving the 1959 Harry Remer Lecture, La Rabida Sanitarium, Chicago, Illinois, June 14, said: "Support for medical research from all sources jumped from \$88 million in 1947 to about \$450 million this year. Of this \$450 million, the Federal Government contributed approximately half, and the balance came from industry, endowment, and private philanthropy."

#### POLIOMYELITIS

Reports show that there is twice as much paralytic poliomyelitis this year as in the same period last year. The trend is upward again. This upward trend will probably not be for this year only but will most likely continue for several years.

What can be done about it? *Vaccinate*—that is the only thing that can be done to curb this upward trend.

The Salk vaccine was approved in 1955 by the Public Health Service. It has been used extensively. With what result?

It has been reported by that Service that the probability of contracting paralytic polio has been reduced 75% for individuals who have received the basic series of three injections when compared to those who have not taken the vaccine; in some groups of children the protection has been as high as 90%. A large percent of the polio in 1958 was among the unvaccinated.

The following method of vaccination is recommended:

- 1 cc initial dose,
- 1 cc in 4-6 weeks after first dose,
- 1 cc 7-12 months after second dose,
- 1 cc booster for those who have completed the series of three doses a year before.

All persons under 40 should be vaccinated. This should be a continuing program. There is no time that is contraindicated.

For those infants under 6 months the following schedule is recommended (starting at 2 months):

- 1 cc initial dose,
- 1 cc 30 days after first dose,
- 1 cc 60 days after first dose,
- 1 cc 7-12 months after third dose.

Now what about oral live virus polio vaccine? To date this has not been approved by the Public Health Service. Much evidence is accumulating as to the effectiveness of one dose of oral polio vaccine. Many adults and children outside the United States, and some in the United States have received this oral vaccine. Those reporting on the tests state that it is effective and safe. However, until such time that the oral vaccine is approved by the Public Health Service we have and should use the Salk vaccine to the saturation point. Every person under 40 should be immunized against polio. The crippling effects of the disease are well known. If there is even a slim chance to prevent the disease and we are told that there is more than a slim chance by the use of Salk vaccine, let us make use of this means.

#### CANCER CHEMOTHERAPY CONFERENCE

A two-day conference on clinical anticancer drug research will be held at Hotel Statler, Washington, D.C., November 11 and 12 by the Cancer Chemotherapy National Service Center of the Public Health Service.

Further information may be obtained from L. B. H. Morrison, III, National Cancer Institute, Bethesda 14, Maryland.

## HONORED

Senior Surgeon Dominick J. Lacovara, Chief Medical Officer and Chief, Psychiatric Program, Federal Correctional Institution, Ashland, Kentucky, was presented with the Tristram Walker Metcalfe Alumni Award at Long Island University, New York, on June 5. The award perpetuates the memory of the university's first president, Tristram Walker Metcalfe, who exemplified the spirit of dedicated service to society.

The presentation speech cited "Dr. Lacovara for unceasing efforts to probe criminal behavior, for his work in the rehabilitation of offenders, for serving society with zeal and brilliance, and for his extensive lecturing on mental health and juvenile delinquency."

## BOOKLET AVAILABLE

*Impairments by type, sex, and age*, U. S. July 1957-June 1958 (PHS Publ. No. 584-B9), can be procured from U. S. Government Printing Office at 25¢ per copy. This is a 28-page booklet containing data obtained through household interviews in approximately 36,000 households.

It is estimated that there are in the U. S. about 24 million impairments. Between 12 and 13 million such impairments consist of some form of limited motion. Visual defects of varying degrees numbered almost 3 million (blindness—inability to read ordinary newsprint even with glasses—is estimated at 960,000 cases).

## MILK CARTON WAX

Since 1957 waxes used in milk cartons and other food containers have been under investigation because of alleged carcinogens being present in the waxes.

A statement recently issued by Arthur S. Flemming, Secretary of Health, Education, and Welfare includes these remarks: "The results of these studies (Shubik, Falk, Kotin, Miller—Ed.) have been reviewed by scientists of both the Public Health Service and the Food and Drug Administration. I am advised that the findings are not final but no indications of a health hazard have been

found. The Food and Drug Administration advises there is at present no basis for action concerning these waxes under the Food, Drug, and Cosmetic Act."

## Veterans Administration

*Chief Medical Director*—WILLIAM S. MIDDLETON, M.D.

*Deputy Chief Med. Dir.*—R. A. WOLFORD, M.D.

## AWARD

Dr. Erwin W. Straus, director of the research and education service of the Veterans Administration Hospital, Lexington, Kentucky, has been given the Chief Medical Director's Commendation. This is the highest award given by the VA Department of Medicine and Surgery.

Dr. Straus was cited for his outstanding contributions to patient care and medical research programs and for his contribution to psychiatry through his writings, lectures, and exhibits.

## SENIOR MEDICAL INVESTIGATORS

Dr. Samuel H. Bassett of the Veterans Administration center in Los Angeles and Dr. Edward D. Freis of the VA hospital in Washington have been appointed as the first senior medical investigators of the Veterans Administration.

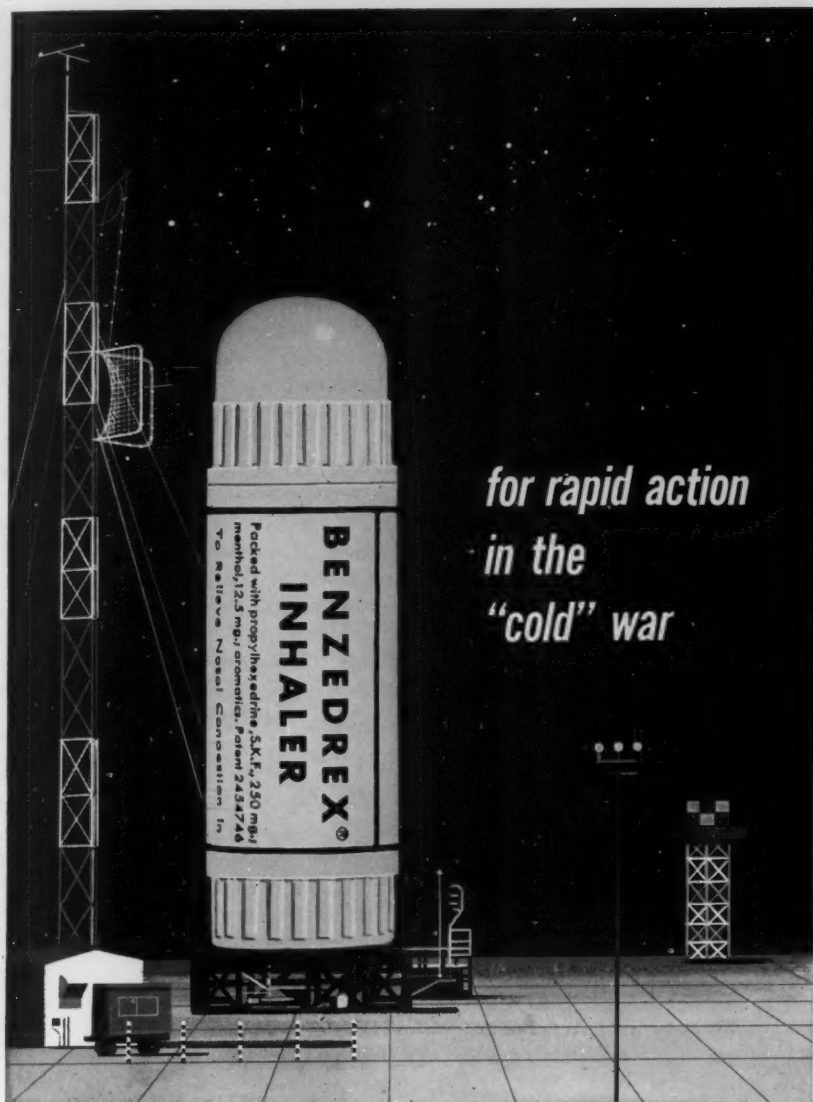
Dr. Bassett's major research contributions have included metabolic work in nephrosis and nephritis, osteoporosis, parathyroid disorders, steroid function and nutrition. His current research is on calcium, phosphorus, and protein metabolism in disease states.

Dr. Freis is known for his outstanding research on high blood pressure. He is coordinator of the Veterans Administration's 11-hospital study of newer drugs for hypertension.

## Miscellaneous

## MEDICAL DIRECTOR, F &amp; D

Dr. William H. Kessenich was recently appointed Medical Director, Food and Drug Administration, Department of Health, Education, and Welfare.



*for rapid action  
in the  
"cold" war*

## **Benzedrex\* Inhaler** (propylhexedrine inhalant, S.K.F.)

is a standardized product with the Army, Navy and Air Force.  
It relieves nasal congestion in seconds. It's safe; it's convenient.  
(Available as F.S.N. 6505-261-7251)

*Smith Kline & French Laboratories*

\*T.M. Reg. U.S. Pat. Off.

Dr. Kessenich, a former U. S. Air Force medical officer, will advise the Commissioner of Food and Drugs with respect to the effectiveness and safety of drugs, devices, and cosmetics. He will also direct clinical studies, review new drug applications, and serve as expert consultant to the Government in court cases involving medical testimony.

#### CONFERENCE ON AGING

The White House Conference on Aging scheduled to be held in Washington in 1961, probably January 9-13, is beginning to take some form. The number of delegates is expected to be limited to 2,800, with two-thirds nonprofessional in the field of problems concerning the aged. It is explained that this conference is to be a "true citizen's forum."

The Advisory Committee headed by Robert W. Kean has adopted the theme, "Aging With a Future—Every Citizen's Concern."

A National Leadership Training Institute was conducted at Ann Arbor, Michigan, June 24-26, by the Department of Health, Education, and Welfare. Representatives from all states were present for the purpose of orientation. From now until the time of the Conference in Washington each State can be studying its problems and present some constructive material for the January 1961 Conference.

The number of persons who reach age 60 and above in our population is growing. The life span in the United States has increased by twenty years since the turn of the century. This older age group must not be considered as a non-effective group. These people have much yet to offer their country. Any plans for them must keep such considerations in mind.

A person who feels he is not wanted, or is not useful is not only non-effective but a definite liability. There are many things that these older people can do; there are many things that they want to do. We must not consider them public charges. Although there is an obligation upon the community to help solve their many problems, they themselves still have some obligation, and some usefulness to the community. It is for us to fit them in; it is for them to fit in.

Training for this older age period in life must start not at 60, but at 30.

#### NEW DEVELOPMENT IN CANCER TREATMENT

The St. Thomas's Hospital in London has opened a radiotherapy unit in which high pressure oxygen is used.

The 8-foot cylinder in which the anesthetized patient lies is in a treatment room with two-foot walls of concrete, accessible through a lead-lined door with observation window. Twelve large cylinders supply the oxygen. The technique has been used on more than 80 patients.

#### NURSES FELLOWSHIP

The 1960 Squibb Centennial Nurses Fellowship is a scholarship which has been established for better preparing a teacher of medical or medical-surgical nursing at the master's or higher degree level.

Further information and application forms may be obtained from Nurses Educational Funds, 10 Columbus Circle, New York 19, N.Y. Applications will be received until February 1, 1960.

#### MEDICAL TEACHER TRAINING

*The Pennsylvania Plan to Develop Scientists in Medical Research* provides grants up to \$7,500 a year for three years to outstanding graduates of medical, dental and veterinary schools for post-doctoral studies at the University of Pennsylvania, Philadelphia.

Approximately \$150,000 a year is being spent on this project by the University. This money comes from contributions by industrialists, businessmen and interested friends.

#### MILITARY RANK

Medical officers were given military rank on July 2, 1847 through the efforts of Dr. T. Lawson.

#### HOSPITAL LAW MANUAL

A two-volume manual on hospital law has been released for distribution by the University of Pittsburgh Health Law Center. The manual is designed for attorneys and hospital administrators. Both volumes

will be supplemented by a quarterly service to keep information current.

## MEETINGS

The American Institute of Ultrasonics in Medicine will hold its Annual Meeting on September 2, 1959 at the Leamington Hotel, Minneapolis, Minn. Further information may be obtained from John H. Aldes, M.D., Secretary, 4833 Fountain Ave., Los Angeles 29, Calif.

The American Rhinologic Society will hold its fifth annual meeting in the Belmont Hotel, Chicago, October 10. This will be preceded by a surgical seminar in the Illinois Masonic Hospital, Chicago, October 7-9. Further information may be obtained from Dr. Robert M. Hansen, Secretary, 1735 N. Wheeler Ave., Portland 12, Ore.

The 12th Annual Conference on Electrical Techniques in Medicine and Biology will be held in Philadelphia, November 10-12. Further information may be obtained from Dr. Herman P. Schwan, Moore School of Electrical Engineering, University of Pennsylvania, Philadelphia.

## PEDIATRICIAN NEEDED

An opportunity exists for a pediatrician, certified or qualified, to become associated with A. G. Davis, M.D., 307 Central N.Y. Power Corp. Bldg., Utica 2, New York. Interested pediatricians should communicate with Dr. Davis.

## FILMS AVAILABLE

*Roundpupil Intracapsular Cataract Extraction and Tucking of the Superior Oblique Muscle Tendons* are 16 mm., sound and color films, 15 minute running time.

These films may be obtained for showing by writing to: Paul F. MacLeod, M.D., Medical Director, Eaton Laboratories, Norwich, New York.

## U. S. GOVERNMENT PUBLICATIONS

*Selected Materials on Environmental Aspects of Staphylococcal Disease* No. FS 2.60/2:St 2/2 \$1.50

*The Mentally Retarded Child at Home* (For Parents) No. FS 3.209:374 \$.35

*Education of the Severely Retarded Child.* No. FS 5.3:959/12 \$.15

*Eat a Good Breakfast to Start a Good Day* No. A 1.35:268/2 \$.05

Above may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D.C. (Check or money order—no stamps.)

## ACCIDENTS

The year of 1958 proved more deadly on American highways than the entire Korean War did on the battlefield. Nearly 37,000 people were killed, and nearly 3 million were injured.

*Capsuled Comments*

## PSYCHIATRY

Psychiatrist: "Why do you keep snapping your fingers?"

Patient: "It keeps the tigers away."

Psychiatrist: "Why, there aren't any tigers within 6,000 miles of here."

Patient: "It works, doesn't it?"

*Kablegram*

## GOVERNMENT

The truth about government of the people, by the people and for the people, is that we are all being billed in triplicate. Which is not what Honest Abe had in mind.

Oren Arnold, *Kiwanis Magazine*

## TAXES

Per capita income in the United States has increased less than 5½ times since 1913. Per capita tax payments have increased nearly 485 times.

*Industrial Press Service*

## PRACTICAL NURSE

A practical nurse is one who married a wealthy patient.

*Bulletin*, Am. Assoc. Motor Vehicle Adm.

## DEATH CERTIFICATE

"You say you want the death certificate changed, Doctor?" asked the puzzled clerk. "It's quite against the rules, you know."

"I know that, but it's important," said the doctor. "You see, I was in a hurry and didn't pay any attention to the space marked

'Cause of Death,' and that's where I signed my name."

*Seng Fellowship News* (Seng Co.)

#### ECONOMY

The secret of economy is to live as cheaply the first few days after payday as you lived the last few days before.

*Changing Times*

## New Members

Capt. O. Vargas-Neyra, MC, Peruvian Army

1/Lt. John D. Kieffer, MSC, USAF-R

A. NO Doris M. Storm, USPHS

Capt. George Zimmerman Heimbach, MC, USAF

Med. Dir. John E. Buhler, USPHS-R

Philip Pross, M.D.

Lt. Col. Burell E. Griffing, MC, USAF-R

Maj. John Edward Hughes, MC, USAR

Sr. NO Vera Fry, USPHS

Maj. Larry B. Klebba, MC, USAF-R

1/Lt. Frederick M. Keating, MSC, USAF

Sr. Surg. George R. Simpson, USPHS-R

Capt. A. D. Huff, Jr., USAF-R (DC)

Med. Dir. Stanley J. Sarnoff, USPHS

Capt. R. J. Howard, DC, USAF-R

Surg. Stanley J. Coltune, USPHS-R

Maj. Noble H. Dodge, DC, USAF-R

1/Lt. Daniels D. Hansen, MC, USAF-R

Lt. Col. Harry Aaron Suslow, DC, USA

Lt. Col. Henry B. Monturean, DC, USAR

Sr. NO Mildred K. McDermott, USPHS

Maj. Seaton J. Jackson, MC, USAF-R

Med. Dir. Leonard T. Kurland, USPHS

John Francis Miller

SA Surg. Lee De Cady, Jr., USPHS

Cdr. Robert S. Hess, DC, USNR

Col. Gary J. Kapopoulos, MC, USAR

Capt. C. Thomas Hill, Jr., MC, USAF-R

Sr. Asst. Dent. Surg. Jack W. Gamble, USPHS

Capt. Milton M. Gross, MC, USAF-R

Med. Dir. J. M. de los Reyes, USPHS-R

Edward M. Kasper, M.D.

1/Lt. Alice A. Hughes, NC, USAF-R

Sr. Surg. Orion H. Stuteville, USPHS-R

(I)

Capt. Stuart J. F. Landa, MC, USAF-R  
Sr. Asst. Dent. Surg. F. D. Morse, Jr.,  
USPHS-R

N. O. Dir. Rosalie I. Peterson, USPHS  
Maj. Theodore Roosevelt Deverick, USAF  
(MSC) Ret.

Asst. Surg. E. A. Boston, USPHS-R

Capt. Anthony Lewis Tomao, MC, USAF

LCdr. Pauline W. Schmid, NC, USN

1/Lt. Carl A. Grondona, Jr., MSC, USA

Capt. Jean T. Smith, USAF (MSPC)

JA Diet. Donna Kay Kinne, USPHS-R

Col. Hamilton R. Young, DC, USA

Lt. Irving Arbital, MSC, USAF

Sr. Surg. A. A. Williams, USPHS-R

Col. Ralph L. Marx, MC, USA, Ret.

Lt. (jg) Albert W. Cook, MC, USNR

Capt. Bennie L. Davis, MC, USAF

Cdr. Margaret L. Haley, NC, USN

Lt. Col. Harry B. Orleans, MC, USAR

Capt. David Katz, MC, USAF-R

Col. Monroe M. Broad, MC, USAR

Maj. Robert H. Kalsched, DC, USAF

## Deaths

COMPTON, Arthur G., U. S. Army Medical Corps, Retired, died of cancer June 19, at Walter Reed Army Hospital at the age of 77.

He was a native of the District of Columbia and graduated from the George Washington University School of Medicine in 1907. In 1917 he entered the Army Medical Corps and remained until his retirement in November 1945. He is survived by a sister, Eva McCormick, who resides at 3512 Runnymede Place, N.W., Washington, D.C. Interment was in Arlington National Cemetery.

HARGREAVES, John M., Major General U. S. Air Force Medical Corps, Retired, former Deputy Surgeon General of the Air Force, died at his home in Portland, Oregon, on June 2, at the age of 58. Death was ascribed to a heart attack.

General Hargreaves, a native of Lamoille Illinois, received his Bachelor of Arts degree from the Macalester College in 1920, and his medical degree from the University of Minnesota in 1924. He served his in-

ternship in the Army Medical Corps following his graduation and was commissioned in the Regular Army in 1925. The following year he was Honor Graduate at the Army Medical School. His interest in Aviation Medicine sent him to the School of Aviation Medicine from which he graduated in 1926 as the Honor Graduate.

His assignments while in the military service included Letterman General Hospital, Sternberg General Hospital (P.I.), Walter Reed General Hospital, Office of the Air Surgeon (Army Air Forces), and later Surgeon of the 8th Air Force at Okinawa, and Air Surgeon, Far East Air Force.

He retired in 1954 after 30 years of active duty and took up his residence in Portland, Oregon.

General Hargreaves was awarded the Legion of Merit for service from July 1942 to July 1945, as Surgeon Air Service Command and Surgeon Air Technical Service Command; and the Bronze Star Medal for achievement as Surgeon, Eighth Air Force in connection with military operations at Okinawa from August 25, 1945 to January 9, 1946.

He is survived by his wife, who lives at 423 N.W. Skyline Blvd., Portland 1, Ore., and two sons, one of whom, John, is an Air Force pilot.

HUBBARD, John C., Lt. Colonel, Medical Corps, USAR, Ret., died in Oklahoma City, March 18, at the age of 74. He graduated in medicine at the Eclectic Medical University, Kansas City, Mo., in 1918. His office was located at 1501 N.E. 11th St., Oklahoma City 17, Okla.

MAXSON, Frank T., Captain, U. S. Naval Reserve, Retired, died at Seattle, Washington, May 20, at the age of 80.

He graduated from the University of Pennsylvania School of Medicine in 1902. In addition to his membership in the Association of Military Surgeons he was a member of the American Medical Association and a Fellow of the American College of Surgeons.

He is survived by his wife who lives at 5234 Ivanhoe Place, N.E., Seattle 5, Washington.

VEIGEL, Lester P., Colonel, U. S. Air Force Medical Corps, died at Hamilton Air Force Base, California, on June 3, of a heart attack. His age was 54.

Colonel Veigel was a native of North Dakota. He received his Bachelor of Science degree from the University of North Dakota in 1928, and his medical degree from Northwestern University in 1931. In December 1932 he entered the Army Medical Corps as a Reserve Officer on active duty, and in July 1933 was commissioned in the Regular Army Medical Corps. He was a graduate of the Medical Field Service School Class of 1934. At the time of the establishment of the Department of the Air Forces, Colonel Veigel transferred to its medical service.

WARNER, Elizabeth, Lieutenant Commander, NC, U. S. Navy, died June 11, 1959, following a long illness.

WILEY, Norman H., Colonel, U. S. Army Medical Corps, Retired, died at South Mountain, Pa., on June 10, of a heart attack. His age was 58.

Colonel Wiley, a native of Pennsylvania, received his Bachelor of Arts degree from Lafayette College in 1924, and his medical degree from Jefferson Medical College in 1928. While in medical school he held a commission in the Infantry Reserve. Upon graduation from medical school he entered the Army as an intern and the following year, 1929, was commissioned in the Regular Army Medical Corps in which he remained until his retirement in 1958.

During World War II he participated in the invasion of North Africa, Sicily and Normandy. He commanded the 48th Surgical Hospital which was redesignated the 128th Evacuation Hospital.

At the time of his retirement in 1958 Colonel Wiley was Medical Director of the Gorgas Hospital, Canal Zone. He moved to Pennsylvania to become Medical Director of the Samuel G. Dixon Hospital, South Mountain, Pennsylvania, the position he was occupying at the time of his death.

He is survived by his wife, a daughter and two sons. Interment was in Arlington National Cemetery.

## NEW BOOKS

Books may be ordered through this association.

- The Management of Oral Disease*, Joseph L. Bernier, D.D.S., M.S., F.D.S., R.C.S. (Eng.), The C. V. Mosby Company, St. Louis, Mo. Price \$15.00.
- A Primer of Water, Electrolyte and Acid-Base Syndromes*, Emanuel Goldberger, M.D., F.A.C.P., Lea & Febiger, Philadelphia, Pa. Price \$6.00.
- Preventive Medicine—Principles of Prevention in the Occurrence and Progression of Disease*, Edited by Herman E. Hilleboe, M.D., and Granville W. Larimore, M.D., W. B. Saunders Company, Philadelphia, Pa. Price \$12.00.
- Trauma*, Harrison L. McLaughlin, M.D., W. B. Saunders Company, Philadelphia, Pa. Price \$18.00.
- That The Patient May Know—An Atlas for Use by the Physician in Explaining to the Patient*, Harry F. Dowling, M.D., Sc.D., Tom Jones, B.F.A., assisted by Virginia Samter, W. B. Saunders Company, Philadelphia, Pa. Price \$7.50.
- Radiation Hygiene Handbook*, Editor-in-Chief Hanson Glatz, McGraw-Hill Book Co., New York, N.Y. Price \$27.50.
- The Nursing and Management of Skin Diseases*, D. S. Wilkinson, M.D., M.R.C.P., The Macmillan Company, New York, N.Y. Price \$5.75.
- Squint and Allied Conditions*, George P. Guibor, M.D., D.D.S., Grune & Stratton, New York, N.Y. Price \$11.50.
- Adenectomy Endo-Uretrale*, Raymond Denis, Masson et Cie, Editeurs, Paris, France. Price 2,500 fr.
- Cliniques Radiologiques*, Professeur J. Roussel, Masson et Cie, Editeurs, Paris, France. Price 3,200 fr.
- The Great Pulse: Japanese Midwifery and Obstetrics through the Ages*, Mary W. Standlee, Charles E. Tuttle Co., Rutland, Vt. Price \$4.50.
- Textbook of Pediatrics*, Edited by Waldo E. Nelson, M.D., S.Cs., W. B. Saunders Company, Philadelphia, Pa. Price \$16.50.
- An Atlas of Normal Radiographic Anatomy*, Isadore Meschan, M.A., M.D., W. B. Saunders Company, Philadelphia, Pa. Price \$16.00.
- Metals and Engineering in Bone and Joint Surgery*, Charles Orville Bechtol, M.D., Albert Barnett Ferguson, Jr., M.D., Patrick Gowans Laing, M.B., B.S., F.R.C.S., The William & Wilkins Co., Baltimore, Md. Price \$8.00.
- Treatment of Lung Cavities and Endobronchial Tuberculosis*, Beryl E. Barsby, M.D., M.R.C.P., The Williams & Wilkins Co., Baltimore, Md. Price \$4.75.
- Progress in Hematology*, Volume II, edited by Leandro M. Tocantins, M.D., Grune & Stratton, Inc., New York, N.Y. Price \$9.75.
- A Manual of Bandaging, Strapping and Splinting*, Augustus Thorndike, M.D., F.A.C.S., Lea & Febiger, Philadelphia, Pa. Price \$2.75.
- Transplantation of Tissues*, Vol. II, Edited by Lyndon A. Peer, M.D., The Williams & Wilkins Co., Baltimore, Md. Price \$20.00.
- DDT, The Insecticide DDT and its Significance*, Edited by Paul Muller, Basel, Vol. II, Human and Veterinary Medicine, Edited By S. W. Simmons, Atlanta, USA, Birkhauser Verlag, Basel (Schweiz, Suisse, Switzerland). Price Fr. 66-.
- Surgery of the Prostate*, Henry M. Weyrauch, M.D., F.A.C.S., W. B. Saunders Co., Philadelphia, Pa. Price \$15.00.
- Elementary Statistics with Applications in Medicine and the Biological Sciences*, Dr. Frederick E. Croxton, Dover Publications, New York, N.Y. Price \$1.95.
- Logistics in the National Defense*, Rear Admiral Henry E. Eccles, USN, Ret., The Stackpole Co., Harrisburg, Pa. Price \$5.00.
- Collected Papers of the Mayo Clinic and the Mayo Foundation*. 1958. (Published June 1959), W. B. Saunders Co., Philadelphia, Pa. Price \$13.00.
- First Report on the World Health Situation 1954-1956*, World Health Organization, Geneva, Switzerland. Available also in French and Spanish Editions. Price \$3.25.
- The Work of WHO 1958*, Annual Report of the Director-General to the World Health Assembly and the United Nations, World Health Organization, Geneva, Switzerland. Available also in French and Spanish editions. Price \$2.00.
- Notes of a Soviet Doctor*, G. S. Pondeov, Consultants Bureau, Inc. New York, N.Y. Price \$4.95.
- Synopsis of Treatment of Anorectal Diseases*, Stuart T. Ross, M.D., F.A.C.S., F.I.C.S., The C. V. Mosby Company, St. Louis, Mo. Price \$6.50.
- Textbook of Oral Surgery*, Edited by Gustav O. Kruger, B.S., A.M., D.D.S., F.A.C.D., The C. V. Mosby Company, St. Louis, Mo. Price \$12.75.
- Ciba Foundation Symposium, Regulation of Cell Metabolism*, Editors for the Ciba Foundation, G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch. and Cecilia M. O'Connor, B.Sc., Little, Brown & Co., Boston, Mass. Price \$9.50.
- Ciba Foundation Symposium, Carcinogenesis Mechanisms of Action*, Editors for the Ciba Foundation, G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch. and Maeve O'Connor, B.A., Little, Brown & Co., Boston, Mass. Price \$9.50.



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## BOOK REVIEWS

**UROLOGY IN GENERAL PRACTICE.** By Frank Coleman Hamm, M.D., M.S., F.A.C.S., Professor of Urology, State University of New York Downstate Medical Center; and Sidney R. Weinberg, M.D., F.A.C.S., Ass't. Professor of Urology (same university). 293 pages, illustrated. J. B. Lippincott Co., Philadelphia and Montreal. Price \$6.00.

This textbook appears to have been adequately written for use of third and fourth year medical students and as a good survey of Urology for doctors who are not specialists in that subject. There is, however, an excellent and extensive bibliography at the end of each chapter which further increases the value of the book.

Each section which discusses one of the component parts of the genito-urinary system follows an effective uniform pattern—namely anatomy, physiology, embryology, infections and tumors of that component. There is a good review and summation of various antibiotics and chemotherapeutic agents used in urinary tract infections. Many excellent diagrams and x-rays are reproduced for further clarification of the pathology discussed.

This book also happily introduces the student to the clinical aspects of urology with a thorough discussion and illustration of the armamentarium used in the clinic, the manner of doing rectals, massage, urinalyses, etc.

The only criticism of this book is directed against the manner of publishing—i.e., the book is bound in soft paper covers, the right margin is irregular, a number of the charts are unduly large and waste much space, and a format employing two columns would have facilitated reading. However this does not detract from the general excellence of the book.

In the opinion of the reviewer, this book is well written and will admirably suit the purpose for which it was conceived.

ALAN L. KLEIN, M.D.

**POLIOMYELITIS.** Papers and discussions presented at the Fourth International Poliomyelitis Conference, Geneva, 1957. 684 pages, illustrated. J. B. Lippincott Company, Philadelphia and Montreal. Price \$7.50.

In this handsomely illustrated volume, the proceedings of the Fourth International Poliomyelitis Conference held in Geneva, Switzerland, in 1957, are now made available to join the volumes record-

ing the previous three meetings. Its contents should be of particular interest to those individuals and institutions concerned with research in the field of virus diseases, as well as the problems of the clinical care of the acutely stricken patient with poliomyelitis and his later rehabilitation.

All of the original papers presented at this meeting are published in their entirety. The book also includes an excellent summary on viruses by Dr. C. H. Andrews, since much basic research material in this field was covered in the conference. In the course of research in poliomyelitis viruses a number of other viral pathogens have been discovered and their importance in clinical medicine is now being assessed.

A considerable amount of space is devoted to the problems of improvement of production and use of poliomyelitis vaccines.

The international aspects of this volume should be stressed as it includes contributions from thirty-four nations including the Soviet Union and other Iron Curtain countries.

MORTON EANET, M.D., U.S.P.H.S.

**PRAKTISCHE DIAGNOSTIK OHNE KLINISCHE HILFSMITTEL** (Practical methods of diagnosis without clinical aids). By Wolfgang Hirsch, M.D., Professor of Medicine, Chief Physician of the Evangelical Lutheran Diaconisse House, and Klaus Rust, M.D., Specialist in internal diseases, Medical Clinic, University of Leipzig. 461 pages, 216 partly colored illustrations, and 26 tables. Johann Ambrosius Barth, Munich, Germany. Price not known.

It has almost become a medical dogma that action must be preceded by thought and that treatment of the sick must be based upon recognition of the nature of his disease. Diagnosis is a prerequisite of good therapy. Yet, education at today's medical schools, which are so well equipped with the marvels of modern technique, does not sharpen much the diagnostic abilities of medical practitioners. Indeed, the great emphasis placed upon laboratory medicine and clinical pathology has rather discouraged at the universities the cultivation of the old Hippocratic art, the recognition of the nature of ailments by means of our always available sense-organs, and the establishment of diagnosis with the aid of simple means.

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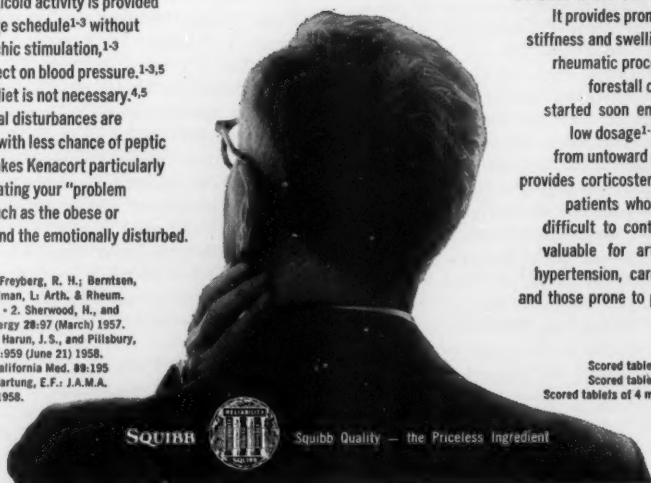
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The present volume is an excellent demonstration of what can be achieved by inspection, auscultation, palpation, percussion and observation only, maybe with the additional use of such instruments as the stethoscope, the thermometer, and the blood-pressure manometer.

For this reason, the work is an excellent vademecum and reference work for physicians who are either in rural practice or as military surgeons may be stationed at the outposts, or are working in the backward areas of the world.

It is hoped that this German work will soon find a translator so that English-speaking physicians will also be able to use it everywhere.

CLAUDIUS L. MAYER, M.D.

**PRINCIPLES OF RADIOGRAPHIC EXPOSURE AND PROCESSING.** By Arthur W. Fuchs, Rochester, N.Y. 284 pages, illustrated. Charles C Thomas, Springfield, Ill. Price \$10.50.

The mere fact that poor radiographs can be and are produced explains why a book of this type is necessary. Written in simple, easily read phraseology and profusely illustrated, this book depicts the story of the x-ray film including the history of its background, its manufacture and storage, its exposure to x-rays and subsequent chemical development of its image all the way to the point of delivery to the radiologist. The fundamentals of roentgen technique are described not merely as a utilitarian listing of required ingredients, such as one might find in a cook book, but are embellished by readily comprehensible explanations of the physical and chemical processes involved and of the erroneous methods of their application.

Since this work is an outgrowth of material used in U. S. Army technicians' schools, it should find particular acceptance among radiologists in the military service. Although written primarily for x-ray technicians, it should be valuable to the resident in training as well as to the practicing radiologist, who might at times be faced with the problems of rectifying technical errors.

Stress is placed on some of the newer techniques whose purpose is to reduce the amount of radiation to which patients might be exposed and whose development warrants the appearance of this (the second) edition.

COL. HARRY L. BERMAN, MC, USA

**COMMUNICABLE DISEASES, Vol. IV in History of Medical Department, U. S. Army, World War II.** Edited by Ebbe Curtis Hoff, M.D.—21 contributors. Editor-in-Chief of History, Colonel

John Boyd Coates, Jr., MC, USA. 544 pp. Superintendent of Documents, Government Printing Office, Washington. Price \$5.50.

This volume, one of the clinical series comprising the official history of the Medical Department of the United States Army in World War II, deals with communicable diseases transmitted chiefly through the respiratory and alimentary tracts. The twenty-one contributing authors were selected for their particular competence and distinction demonstrated in their special fields. Credit is due the Advisory Editorial Board for their selection and for their integrating the manuscripts into a systematic, unified volume.

Each disease is given general and detailed consideration. The detail is such as would be available only in the armed forces where mortality, and, more especially morbidity, is a matter of record which has been given extensive statistical treatment in this volume. The many excellent tables and charts summarize clearly and concisely volumes of data. The effects of the environment and the adequacy of the control measures are reported in detail. Numerous special studies relating to the etiology, incidence, control and treatment of diseases spread through the respiratory and alimentary tracts are included. While the material was developed for and is most applicable to the military, there is much material of great value and interest to any physician or ancillary person desiring to learn more about the significance, the prevention and the control of the communicable diseases considered. It is an outstanding source book for the teacher and for the student of epidemiology.

WILLIAM C. HARRISON, M.D., M.P.H.

**A GUIDE TO THE HISTORY OF BACTERIOLOGY.** By Thomas H. Grainger, Jr., Associate Professor of Bacteriology, Lehigh University. 210 pages. The Ronald Press Co., New York. Price \$4.50.

This book has four main divisions. Part I covers a general bibliography of the subject including such useful things as scientific awards; sources of research support; patent information; societies and journals; handbooks and tables; and the Society of American Bacteriologists.

Part II deals with bacteriological history in regard to specific areas as anaerobes, dairy, food, immunology, experimental animals, genetics, and more unusual ones such as paleopathology and micropalaentology.

Part III and IV are closely allied, the first having biographical references to bacteriologists, and such subjects as the age at which bacteriologists do their best work. Part IV is a guide to biographies of more than fifty men of the greatest distinction in the field. The book is a real contribution to medical literature and Dr. Grainger has done much to smooth the path for future historians of bacteriology or future biographers. Indeed, anyone

wanting information for a monograph or lecture on a bacteriological subject would find the book most helpful.

CAPT. LOUIS H. RODDIS, MC, USN, RET.

**EYE SURGERY.** 3rd Ed. By H. B. Stallard, M.B.E., M.A., M.D., Eye Surgeon, St. Bartholomew's Hospital, London. 899 pages, 671 illustrations. The Williams & Wilkins Co., Baltimore, exclusive U. S. Agents. Price \$18.00.

Professor Stallard states that the main reason for writing the third edition is to bring it up to date. This seems to be the cardinal virtue of this book. Everything that has been established as better has been included in the third edition; however a few items that are still showing signs of progress, but have not become fully established were omitted in this book. Since this is a textbook, this is as it should be.

The opening chapter deals with the handling of eye instruments, sterilization, and the use of chemotherapeutic, antibiotic, and adrenocorticotrophic drugs. This is followed by a chapter on anesthesia and akinesia. Xylocaine (2%) is preferred to previously used local anesthetics. Hyaluronidase and adrenalin is recommended to improve the effect of the xylocaine. Pre-anesthetic medication and general anesthesia are discussed.

Lessons learned about reconstructive plastic surgery of the eyelid have been incorporated. The chapter on the lacrimal apparatus includes the latest techniques in dacryocystorhinostomy. Paralytic strabismus, muscle transplantation, third, fourth, and sixth nerve palsies, partial transplantation of the levator palpebrae superioris, surgery of the obliques and recti-muscles are treated very comprehensively. The chapter on kertosplasty has been broadened.

Electrocoagulation of malignant melanoma of the ciliary body, iridectomy for malignant neoplasm of the iris and iridocapsulotomy techniques have been detailed. All of the typical up-to-date types of operations for cataract and glaucoma are described. Most of the methods of handling retinal detachments including the use of vitreous transplants are explained. The diagnosis of the details of retinal detachment is given the great attention it deserves.

An entire chapter is devoted to traumatic surgery, civil and military. Techniques developed more recently in times of war and disaster are given prominence. Techniques for repairing the orbit, and exenteration of the orbit are described in a very progressive manner.

Excellent photography of patients and surgical equipment, and many clarifying drawings by the author are among the excellent features of this superb book. The personality of the author as a physician, surgeon, lecturer, and teacher are reflected in this splendid third edition.

COL. ROLAND I. PRITIKIN, MC, USAR

**LEUKEMIA.** By William Dameshek, M.D., Professor of Medicine, Tufts Univ., School of Medicine; and Frederick Gunz, M.D., Ph.H., Hematologist, Christchurch, New Zealand. 420 pages, illustrated. Grune & Stratton, New York and London. Price \$15.75.

In the authors' preface, they offer this monograph as neither a text nor an encyclopedia, but rather as an interim review of what has accumulated in the literature. This is a most welcome and highly readable volume in a field in which surprisingly little has been presented in a comprehensive form since Forkner's text of 1938. The literature review is necessarily brief, but the bibliography is extensive and can serve as a guide to more detailed reading. The authors review their subject systematically, considering in turn etiology, prevalence, pathology, clinical features, diagnosis and treatment. In many incompletely understood subjects, there will be no entirely satisfactory system of classification. The leukemias are no exception, and here the authors attempt to draw what seems to be too fine a line and present a classification which will not be accepted by all readers. For example, the retention of "leukosarcoma" will not appeal to those who feel there is no fundamental difference between lymphatic leukemia and lymphosarcoma.

The quality of photographic reproduction and printing is excellent, and the illustrations closely follow the text. Everyone dealing with the treatment or diagnosis of the leukemias should read this volume, and everyone seeing patients should read the well-written chapter, "What Shall One Tell The Patient?"

MED. DIR. LESTER R. NAGEL, USPHS.

**THE COMPLETE BOOK OF SUBMARINES.** By Commander C. W. Rush, USN and W. C. Chambliss, and H. J. Gimpel. 159 pages, illustrated. The World Publishing Co., 2231 West 110th St., Cleveland 2, Ohio. 1958. Price \$4.95.

For many centuries men have made attempts of one kind or another to travel under water. This excellent book gives the history of the submarine from the time of Alexander The Great. The book is well illustrated, full of information and easy to read. Here is an interesting book on submarines written in non-technical language for the general reader who wants to know the history of this under-water craft and how it operates.

A.J.S.

**CARDIOLOGY FOR NURSES.** 3rd Ed. Revised and enlarged. Walter Modell, M.D., Associate Professor; and Doris R. Schwartz, B.S., R.N., Assistant Professor, School of Nursing, both of Cornell University. 328 pages. Springer Publishing Co., Inc. New York. Price \$4.50.

This book contains valuable information which should be helpful to the nurse. It appears to be

more than a handbook, however as to text, information is general and the material seems segmented.

Drugs seem well covered giving the action and toxic effects of various types of drugs. Open heart surgery is mentioned; however, indications for this type surgery and the technics used are omitted.

Nursing care is set apart from the patients' condition and includes general information which might be helpful in caring for any patient.

The book is simply written and easily readable. It should be of particular value to the student nurse or graduate practical nurse as a reference on cardiology.

MAJOR CLARA M. DULEY, ANC

**TREATMENT IN INTERNAL MEDICINE.** By Harold Thomas Hyman, M.D., Consulting Physician, Monmouth Memorial Hospital and Riverview Hospital, New Jersey. 609 pages. J. B. Lippincott Co., Philadelphia and Montreal. 1958. Price \$12.50.

This is a completely different, very comprehensive and well integrated guide to treatment in every day medicine. It is organized into 10 sections of 110 chapters with 3 supplements. Excellent illustrations enhance its value. Background material and diagnostic information for various diseases and syndromes are followed by latest authoritative therapeutic measures. Alternative therapy is suggested for those cases where usual treatment fails.

In addition to the usual subjects treated in most texts of this kind, this fine volume contains detailed therapeutic suggestions for the management of such conditions as headaches, poisonings, neuromes, coma, convulsions, dyspnea, pain, snake bite, food poisonings, cerebro-vascular accidents, drug reactions, diarrhea and many others. Rosters of therapeutic agents are extremely helpful and appropriately located throughout this superb text.

No brief review can do justice to this book which has a tremendous amount of up to date information—so authoritative, so well arranged, so interesting, so readable—yet brief enough that every internist and every generalist will find it an indispensable treatment reference.

COL. H. P. MARVIN, USA, RET.

**PHYSIOLOGY OF SPINAL ANESTHESIA.** By Nicholas M. Greene, M.A., M.D., Professor of Anesthesiology, Yale University School of Medicine. 195 pages. The Williams and Wilkins Co., Baltimore. Price \$6.00.

This excellent monograph is a thorough and comprehensive survey of the physiological effects of spinal anesthesia. Dr. Greene divides his subject into the following nine categories: (1) The Central Nervous System; (2) The Cardio-Vascular System; (3) Pulmonary Ventilation and Hemody-

namics; (4) Hepatic Function; (5) Renal Function; (6) Endocrine Function; (7) Metabolism and Acid Base Balance; (8) Obstetrical Physiology; and (9) The Gastro-Intestinal Tract.

In each of the above chapters, he surveys and condenses the large volume of literature of investigational data, and then presents and elaborates to some extent the present accepted physiological effects of spinal anesthesia.

Especially noteworthy are three chapters, namely, the Central Nervous System, the Cardio-Vascular System, and Obstetrical Physiology. Particularly in these three sections Dr. Greene makes clear the physiological effects and the benefits so derived from these effects, as well as emphasizing the physiological limitations of spinal anesthesia.

This book is highly recommended to all anesthesiologists and surgeons.

CAPT. J. G. KURFEES, MC, USN

**TECHNIC AND PRACTICE OF PSYCHOANALYSIS.** By Leon J. Saul, M.D., Professor of Clinical Psychiatry, Medical School of the University of Pennsylvania. 244 pages. J. B. Lippincott Company, Philadelphia and Montreal. Price \$8.00.

Here are detailed what the title promises, making a very readable how-to-do-it treatise. Bibliography is excellent; index, good.

Within a recognizably orthodox Freudian framework, the relative advantages of permissible variations of method are carefully presented. To some other controversial matters, less attention is given than might be desired by the psychiatrist in search of a treatment for a syndrome. Subjects like obsession, compulsiveness, sociopathy, are missing from the index and found but sparingly in the text. Granted, desiderata of the analysts are of the order of dynamics, not diagnosis; yet what an examiner sees are presenting symptoms for which he must prescribe treatment.

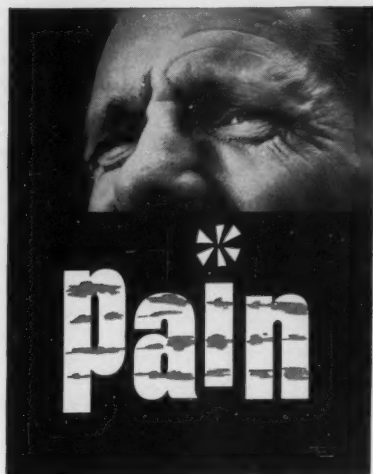
This book is recommended to analysts of all schools; also to any physician or administrator who would evaluate the process and purpose of psychoanalysis.

COL. JAMES H. HUDDLESON, USAR, RET.

**THE FAMILY MEDICAL ENCYCLOPEDIA.** Editor-in-Chief, Justus J. Schifferes, Ph.D., with Advisory Editorial Board of eight members. 617 pp. Little, Brown & Company, Boston. Price \$4.95.

Written primarily for use in the home, this new and very useful medical encyclopedia defines or describes some 2500 medical terms or topics in language easily understood by the laity. First of all, it gives suggestions for first aid in emergencies. Beyond that it aims to "render medical and life emergencies less likely to happen." The author and his 8 physician editorial advisers also consider both the physical and psychological aspects of many

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health problems and disease conditions with the purpose of developing a healthier approach toward life as well as a better understanding of illnesses.

Emphasizing adult health, this encyclopedia is instructive in scope. It is not intended to replace the physician but to steer folk to their doctor at proper times. Material is arranged alphabetically with many helpful illustrations and cross references. This "Health Education Council Book" is highly recommended as a comprehensive summary of medical words and terms that should prove very valuable to any family.

COL. H. P. MARVIN, USA, RET.

**INDUSTRIAL CARCINOGENS.** By R. E. Eckardt, M.D., New York University and Cornell University, 164 pages, illustrated. Grune & Stratton, New York. Price \$6.50.

This slender monograph fittingly begins with a reproduction of a page of Sir Percival Potts' *Cancer Scroli*, and continues in the English style of graceful scientific writing. It is divided into five basic sections, each complete unto itself: historical experimental, occupational, cancer protective programs, medico-legal considerations and general predictions.

Each section will appeal to a different discipline of medicine. Two features are exceptional. The discussion of experimental methods, interpretation, and pitfalls in methods and review is highly recommended to every worker in the field today. The section on protective programs is necessary reading for every physician doing full-time or part-time industrial medicine. In the section on medico-legal considerations the author comes to grips with a problem that has been heretofore ignored *in toto* or referred to someone else.

The book is brief and readable. It is recommended reading for men dealing with both industrial medicine and medico-legal problems. Moreover the section on experimental method and its interpretation is superb and it is the reviewer's fear that because of the book's title, research workers will pass by an invaluable guide.

MED. DIR. LESTER R. NAGEL, USPHS

**DIAGNOSTIC BACTERIOLOGY.** 5th Ed. By I. G. Schaub, M. K. Foley; revised by E. G. Scott and W. Robert Bailey. 338 pages. The C. V. Mosby Co., St. Louis. Price \$4.75.

In this edition "much new material has been added. There are four new chapters in which are described plate dilution method for determining antibiotic susceptibility, the determination of the antibacterial level of serum during antibiotic therapy, new serologic tests, and the handling of specimens for the laboratory diagnosis of virus diseases."

This book will be found to be useful to those persons working in the field of bacteriology.

R.E.B.

**PRACTICAL DERMATOLOGY.** 2nd Ed. George M. Lewis, M.D., F.A.C.P. 363 pages, 121 illustrations. W. B. Saunders Company, Philadelphia and London. Price \$8.00.

Within the modest confines of three hundred and fifty pages the author has managed to present a very adequate picture of current dermatologic practice. Although intended primarily for the medical student and general practitioner, there is much of interest for the specialist who wishes to compare his own views with those of an outstanding teacher and consultant.

Dr. Lewis has always displayed a conservative approach towards new, inadequately tested therapeutic agents. He frowns upon the indiscriminate use of cortisone preparations in the treatment of such chronic conditions as psoriasis, nor is he convinced of the value of oxsoralen in vitiligo.

A chapter of particular interest to the internist is devoted to an admirable discussion of those systemic disorders whose presence may be suspected through early manifestations in the skin. This edition also reflects the increased awareness of the importance of psychosomatic factors in the etiology or aggravation of many skin diseases.

The formulary is modern and complete, including a list of proprietary drug names which have proved useful in the author's experience. The uniformly excellent and characteristic photographs are worthy of the thanks Dr. Lewis pays to his devoted associate, Miss Mary E. Hopper, the noted mycologist. Ninety-nine new plates were added to this revision, bringing the total number of individual photographs to the amazing number of 555. Even though the book has grown by fifty pages it remains easy to handle and read.

Dermatology is notoriously difficult to teach and study even when adequate clinical material is available. This well-written and carefully planned text-book should make the task less perplexing for everyone concerned.

LT. COL. MORRIS H. SAFFRON, MC, USAR

**WATER AND ELECTROLYTE METABOLISM IN RELATION TO AGE AND SEX.** Ciba Foundation Colloquia on Ageing. Vol. 4. Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch.; and Cecilia M. O'Connor, B.Sc. 327 pages, illustrated. Little, Brown & Co., Boston. Price \$8.50.

In summarizing the highlights of progress in this field, this volume maintains the general excellence of its predecessors in a series on ageing.

If the participants in this colloquium have raised more questions than they have answered, it is a tribute to their searching study of an extremely difficult subject concerning phenomena which are influenced by, or are under the control of, organs and hormones participating in an interplay of various physiological mechanisms and biochemical re-

actions. It is obvious that much more needs to be known about water and electrolyte metabolism in general, before sufficiently adequate correlations may be made in relation to developmental physiology and biochemistry.

The subjects run the gamut of water and electrolyte changes from the cellular level to the organism as a whole, throughout the life span, with reference to various disease conditions. A list of the contents would be too long for the space allotted to this review. Suffice it to say that although the matter as presented is primarily useful to research workers, the clinician may, nevertheless, profit greatly in his management and control of water and electrolyte balance, from the guidelines and pitfalls which are revealed throughout these studies.

JULIUS SENDROY, JR., Ph.D.

**POISONING. A Guide to Clinical Diagnosis and Treatment.** 2nd Ed. By W. F. von Oettingen, M.D., Ph.D., National Institutes of Health. 627 pages. W. B. Saunders Company, Philadelphia and London. Price \$12.50.

This edition amplifies and extends information in the 1st edition of six years ago, but follows the same style of presentation: (1) Classification, (2) Clinical diagnosis, (3) Management, and (4) Synopsis of Clinical Effects and Treatment for poisons from *Abrus precatorius* to *Zygadenus venenosus*.

The first section discusses methods of diagnosis and emergency measures, listing equipment, drugs and chemicals which should be in the physician's emergency bag. The second section discusses the method of taking histories and tabulates various changes in structural and functional pathology noticed by inspection or blood or urinalysis. The third section describes methods of removal of toxic agents or detoxification after absorption. The fourth section of four hundred pages treats several hundred poisons, listing the usual symptoms of small and large doses after acute or chronic exposure, gives definite methods of treatment (if any there be) and pertinent literature citations. There is an index of 27 pages.

The author has summarized his own numerous contributions in the field of toxicology, and critically appraised the world literature. This book should be available in any office which may be called upon to treat cases of poison at any time.

JAMES C. MUNCH

**SO YOU HAVE GLAUCOMA.** By Everett R. Viers, M.D., Lecturer in Ophthalmology, University of Texas Post Graduate School. 64 pages. Grune & Stratton, New York and London. Price \$2.75.

This 64 page monograph presents historical background of glaucoma; anatomy and physiology of the eye; and the etiology, symptoms, diagnosis, prognosis and treatment of this eye disease that affects

about one million of our population. This valuable material is clearly defined, concise, and written in simple language, primarily for patients. Those with glaucoma will find this book invaluable in helping them to understand their disease and to appreciate the necessity for specific instructions by their physicians. Every patient with glaucoma should own this fine treatise.

COL. H. P. MARVIN, USA, RET.

**DISEASES OF THE NERVOUS SYSTEM.** By Sir Francis Walshe, M.D., D.Sc., F.R.S., Consulting Physician to the University College Hospital, London. 373 pages, illustrated. The Williams & Wilkins Co., Baltimore, exclusive U. S. Agents. Price \$8.00.

This, the Ninth Edition of Sir Francis Walshe's book, continues his primary purpose of presenting a simple text for students and practitioners, omitting as he states, "complex and redundant terminology," and "the very tyranny of words that stifles thought in terminology," common to so much neurological writing.

Chapters on the neurological complications of liver disease and hepatolenticular degeneration have been added and the section on cerebro-vascular disease expanded.

The author's clear, concise form of presentation of the basic principles of neurologic diagnosis and his descriptive accounts of the more common diseases of the nervous system remain classics.

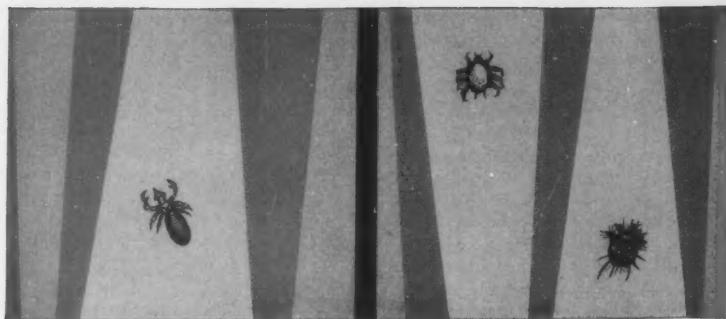
JAMES F. HAMMILL, M.D.

**REVERSIBLE RENAL INSUFFICIENCY.** Diagnosis and Treatment. By Donald H. Atlas, M.D., Northwestern University School of Medicine; and Peter Gaberman, M.D., Chicago. 233 pages. The Williams & Wilkins Co., Baltimore. Price \$7.00.

Acute reversible or potentially reversible renal insufficiency may be encountered in cases being handled in every specialty in medicine. It is in military medicine, however, that post-wounding or post-traumatic renal insufficiency has loomed as an especially tragic problem. While this monograph of 204 pages deals primarily with the potentially reversible case of acute renal failure, one section is devoted to the potential reversibility of chronic renal insufficiency. Especial emphasis is very properly placed on those cases in which a disturbance of calcium metabolism leads to nephrocalcinosis. It is clear that this small monograph sounds a note of optimism and quite properly so regarding reversible renal insufficiency.

The volume deserves a place on the book shelf of practically every physician. Its thorough perusal might well encourage more careful evaluation of all cases of renal failure in order that those which are potentially reversible may be recognized and properly treated.

COL. ROBERT E. BLOUNT, MC, USA



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Gardner, J.: J. Pediat. 52:448 (Apr.) 1958.

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